DOCUMENT RESUME

ED 202 968 UD 021 467

TITLE	Minimum Teaching Essentials: Grades K-2.
INSTITUTION	New York City Board of Education, Brooklyn, N.Y. Div. of Curriculum and Instruction.
REPORT NO	ISBN-0-88315-455-7; NYCBE-CB-01-0000-81
PUB DATE	79
NOTE	239p.; For related documents, see ED 181 828, ED 190 695, UD 021 456-460, UD 021 463-471, UD 021 474. Some tables and credits may not reproduce due to small type size.
AVAILABLE FROM	Board of Education of the City of New York, Publication Sales Office, 110 Livingston Street, Brooklyn, NY 11201 ($3.00; make checks payable to Publication Sales).
EDRS PRICE	MF01/PC10 Plus Postage.
DESCRIPTORS	Child Development; Communication Skills; Content Area Reading; Curriculum Guides; English (Second Language); Grade 1; Grade 2; Kindergarten; *Minimum Competencies; Primary Education; Second Language Instruction; *Study Skills
IDENTIFIERS	*New York City Board of Education

ABSTRACT

This bulletin presents the minimum in basic skills and knowledge which must be taught to New York City students in grades K-2. The bulletin begins with an overview that highlights the major components of each discipline and its role in the educational process. Subject areas include: (1) art; (2) bilingual education; (3) career education; (4) foreign language; (5) health education; (6) library media; (7) mathematics; (8) music; (9) physical education; (10) science; and (11) social studies. Work study skills for all subject areas are also presented. Curriculum content areas are listed with descriptors for specific skills and knowledge objectives. Similar programs are given for communication arts, which includes reading, speaking, listening, and writing, and English as a second language. A section on child development reviews children's basic pyschological needs and growth patterns for children in grades K-2. A phonemes table and a list of curriculum publications are appended. (Author/APM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

UD021467

ED202968

MINIMUM TEACHING ESSENTIALS

Grades K-2

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

R. Edmonds
NYC Public Schools

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

NEW YORK CITY BOARD OF EDUCATION

OFFICE OF CURRICULUM DEVELOPMENT AND SUPPORT • DIVISION OF CURRICULUM & INSTRUCTION

ISBN 0-88315-455-7
CURR. 01-0000-81

New York City Public Schools should order additional copies of this publication from the Bureau of Supplies

ISBN 0-88315-455-7 Curriculum No. 01-0000-81

Copies of this publication may be purchased by outside agencies from: Board of Education of the City of New York, Publication Sales Office, 110 Livingston Street, Brooklyn, New York 11201. Checks should be made payable to Publication Sales.

Price: $3.00

MINIMUM TEACHING ESSENTIALS

Grades K-2

NEW YORK CITY BOARD OF EDUCATION
OFFICE OF CURRICULUM DEVELOPMENT AND SUPPORT • DIVISION OF CURRICULUM & INSTRUCTION

NEW YORK CITY BOARD OF EDUCATION
(1980)

Joseph G. Barkan, *President*
Miguel O. Martinez, *Vice President*
Amelia H. Ashe
Robert J. Christen
Irene Impellizzeri
Marjorie A. Lewis
James F. Regan

Frank J. Macchiarola, *Chancellor*
Richard Halverson, *Deputy Chancellor*

Charlotte Frank, *Executive Director*
Division of Curriculum and Instruction

COPYRIGHT 1979 by the Board of Education of the City of New York
First Printing, 1979. Reprinted 1980.

Application for permission to reprint any section of this material should be made to the Chancellor, 110 Livingston Street, Brooklyn, New York, 11201. Reprint of any section of this material should carry the line, "Reprinted from Minimum Teaching Essentials by permission of the Board of Education of the City of New York."

Contents

FOREWORD.....v

ACKNOWLEDGMENTS.....vii

INTRODUCTION.....1

OVERVIEWS.....3

- Art.....5
- Bilingual Education.....6
- Career Education.....9
- Health Education.....15
- Library Media.....16
- Mathematics.....17
- Music.....18
- Physical Education.....19
- Science.....20
- Social Studies.....21
- Work Study Skills.....22

COMMUNICATION ARTS: Listening, Speaking, Reading, and Writing, Grades K-3.....23

English as a Second Language.....41

CHILD DEVELOPMENT FOCUS GRADES K-2.....45

WORK STUDY SKILLS (All Subject areas) Grades K-2.....49

- *Kindergarten.....53
- *Grade 1.....75
- *Grade 2.....97

CREDITS.....121

Appendix A - Phonemes Tables.....126

Appendix B - Curriculum Publications.....128

* See Grade cover page for individual subject listings.

This booklet is extracted from Minimum Teaching Essentials: Grades K-9 published by the Board of Education of the City of New York in 1979. Content areas and topics for Communications Arts up through Grade 3 have been included because of the pervading importance of these skills throughout the academic life of the child.

- Ed.

Foreword

Decentralization imposes upon District Community School Boards the responsibility to control and operate, in a form consistent with the policies of the Central Board of Education, all pre-kindergarten, nursery, kindergarten, elementary, intermediate, and junior high schools. Community Boards also decide matters of instruction and select textbooks and ancillary materials, subject to the prior approval of the Chancellor. Decentralization thus allows districts the flexibility and differentiation necessary to meet the varying needs of their students.

At the same time, the decentralization law also continues the power vested in the Office of the Chancellor to "promulgate minimum educational standards and curriculum requirements for all schools and programs throughout the city district."* It is hoped that Minimum Teaching Essentials K-9 will provide every educator with the knowledge of what must be taught in content and basic skills for each grade level in all curriculum areas, thus offering every student an instructional program governed by the approved curriculum. Presenting such essentials is also a step toward creating the continuity of instruction desirable for a city with high pupil mobility.

Students in most classrooms will be taught more than is specified as a minimum. Supervisors and teachers will innovate, enrich, and extend curricula whenever possible. But this bulletin forms the teaching base required to maintain educational standards and ensure appropriate learning opportunities in every classroom. We can offer our students no less.

Frank J. Macchiarola
Chancellor

* New York State Education Law, Article 52, paragraph 2590-h.

Acknowledgments

The curriculum publication, Minimum Teaching Essentials K-9, was initiated by Irving Anker, former Chancellor of the New York City Public School System. Both the experimental and the revised editions were prepared as projects of the Division of Curriculum and Instruction, Arnold Webb, Executive Director*.

Grateful appreciation is extended to all the supervisors and staff of the Centers within the Division of Curriculum and Instruction. Without their support, cooperation and expertise, this document would not have been possible. Charlotte Frank, Director of the Center for Curriculum Development, was responsible for coordinating the contributions of the subject area Centers and preparing the manuscript for publication. The supervisors who were responsible for development of the materials are listed below under their contributing Center.

Arts and Humanities: Florence Jackson, Director; Grace George Alexander-Green, Head of Art Unit; Anita Dore, Director of English; David Weiss, Assistant Director of Foreign Languages; John Motley, Director of Music; Albert Post, Assistant Director of Social Studies

Bilingual Education: Hernan Lafontaine, Executive Administrator

Career and Occupational Education: George Quarles, Chief Administrator; Juanita Ward, Project Director, Career Education Unit; Herbert Siegal, Director of Industrial Arts; Kathleen Rogers, Director of Home Economics; Norman Watnick, Assistant Director of Business and Distributive Education

Health and Physical Education: Irwin Tobin, Director; Bernard Kirschenbaum and Angela Zirpiades, Assistant Directors of Physical Education; Melvin Warren, Assistant Director of Health Education

*The organizational structure and titles throughout the acknowledgments are those in effect at the time of the initial printing of Minimum Teaching Essentials: Grades K-9, from which book this edition has been extracted.

Mathematics and Science: Frank Wohlfort, Assistant Director of Mathematics; Sam Fried, Assistant Director of Science
School Development: Hortense Jones, Director
Library, Media and Telecommunication: Morris Freedman, Director; Geraldine Clark, Assistant Director, Head of Library Unit
Reading: Marian Power, Director (Acting)

Special thanks is extended to teachers, school and district supervisors and members of institutions of higher education whose suggestions have contributed greatly to this document.

Because of the large number of individual contributors, names have been listed in the section entitled Credits.

Introduction

This revised edition of Minimum Teaching Essentials K-9 presents the minimum in basic skills and knowledge which must be taught within each curriculum area. It does not constitute the full scope of the various courses of study. It should also be noted that this publication does not include teacher methodology, student attitudes and appreciations, or moral and ethical values. Previously published bulletins provide the necessary support to help education design and implement the complete and appropriate curriculum. The purpose of this document is to provide administrators, teachers, parents, and other members of the educational community with a comprehensive resource which identifies, within all disciplines, the basic body of knowledge and skills to be taught at each grade or level.

The organization of the bulletin begins with a broad perspective of each subject area. These statements highlight the major components of the individual disciplines and indicate the role each area plays in the total educational process. Statements of the philosophy, goals, and guidelines for bilingual education are included. Career education is represented with basic understandings for each grade.

Reading and language arts are integrated as "communication arts," reflecting the interdependent nature of listening, speaking, reading and writing. This arrangement also reinforces the principle that specific reading skills are a means to increase students' abilities to read for pleasure and information, and are not ends in themselves. The communication arts section is presented in uninterrupted sequence K-9 and precedes the other subject areas.

A child development focus appears before grades K-2, 3-5, and 6-9. This section reviews children's basic psychological needs, and the physical, socio-emotional, and intellectual growth patterns expected of a particular age group. The work-study skills used in all subject areas are presented in chart form for K-2, 3-5, and 6-9.

English as a second language and foreign languages in the elementary school (FLES) are also treated by levels and precede the subjects which are grouped by grade. Specialized subjects for the intermediate or junior high school are presented course by course. These are: foreign languages, home economics, industrial arts, and typewriting.

All other curriculum subjects within a grade level are grouped together, i.e., for the third grade the order is art, health education, library-media, music, physical education, science, and social studies. Each page presents content area and/or topics with descriptors for specific skills and knowledge. References for suggested classroom implementation are keyed to existing bulletins where relevant. Bulletin titles are found on the first page of subject areas for each grade. Some subjects offer suggestions for the number of days or weeks to be devoted to a topic within that area.

The publication of this bulletin represents a major step in establishing minimum curriculum essentials. The translation of these standards into effective learning for every student will be realized only with the creative skill and dedication of all of us in the educational community of New York City.

Arnold Webb
Executive Director

Overview of Curriculum Areas

ART

Growth in art expression is part of the total growth of the child. When the experience which motivates the art is child centered, authentic, and personal, the art product will ring true.

The child gains power in self-expression when the art experiences have continuity, when they provide leeway for self-evaluation, and when they build upon cumulative skills in the making of art products.

All children need rich art experiences which are integral to their total physical, perceptual, mental and social development.

BILINGUAL EDUCATION

One of the most fundamental and universally acceptable concepts in education is that an instructional program should utilize the student's already acquired language skills and thought processes as a basis for fostering intellectual development and mastery of the basic skills of communication and reasoning. This concept is equally valid for all pupils, and it is especially appropriate for students living within our society whose language and culture differ from our own. Educational success for linguistically different students is enhanced by permitting them to learn in their first language while they are learning to function successfully in English. Thus, they will have an opportunity to be better prepared to participate meaningfully within their new environment. The primary goals of a bilingual education program are excellence in both languages and the development of basic skills. The inherent validity of these goals makes it clear that bilingual programs can be made available to all pupils within our system for the purpose of enriching their educational and life experiences. It is felt that this comprehensive approach will lead to the preparation of an individual who will be capable of leading a full and productive life, possessing the ability to adapt to new demands, opportunities, and values in a constantly changing world.

Bilingual education has been defined as the use of two languages as mediums of instruction for the same pupil population in a well-organized program which encompasses part or all of the regular curriculum and which includes the study of the history and culture associated with both languages. In the United States, of course, one of the two languages will be English. The bilingual program incorporates an interdisciplinary approach which includes all the required curriculum areas that are part of the traditional school program. Thus, for example, the mathematics curriculum will include the same scope and sequence made available to other students, the only difference being the use of a language other than English as the vehicle for instruction.

ELEMENTS OF A BILINGUAL PROGRAM

Every bilingual program which sets the aforementioned goals and objectives should include the following elements:

PROVISION FOR THE REINFORCEMENT AND SEQUENTIAL DEVELOPMENT OF THE PUPIL'S DOMINANT LANGUAGE

It provides for language arts instruction in the pupil's native language,in which the four language skills will be developed sequentially, e.g., listening, speaking, reading, and writing. Thus, we use the language in which the child has already acquired the sound system, basic structure, and vocabulary in the development of cognitive as well as other skills.

DEVELOPMENT OF THE ABILITY TO UNDERSTAND, SPEAK, READ, AND WRITE A SECOND LANGUAGE

The student begins immediately to learn the second language through the utilization of a sequentially based methodology in second language teaching. A typical English as a second language program will begin with an emphasis on aural and oral skills, and gradually reaches the stage where the student can advance to reading and writing.

PROVISION FOR SEQUENTIAL INSTRUCTION IN THE STUDENT'S NATIVE LANGUAGE IN THE CURRICULUM AREAS CONSISTENT WITH THE ESTABLISHED REQUIREMENTS FOR THE CITY'S SCHOOLS

Content areas which are considered to be critical to the intellectual and emotional development of students and to their success in the school environment are initially taught through the use of their first language, thereby permitting and encouraging them to enter and participate immediately in all classroom activities and draw from previous experiences as bases for developing new ideas and concepts.

DEVELOPMENT, REINFORCEMENT, AND ENRICHMENT OF STUDENTS' APPRECIATION AND KNOWLEDGE OF THEIR OWN HISTORY AND CULTURE, AS WELL AS THE HISTORY AND CULTURE ASSOCIATED WITH THE SECOND LANGUAGE

The historical contributions and cultural characteristics identified with the people representing both linguistic communities are an integral part of the program. Relationships, similarities, and differences are presented in the social development of state, nation, and community, in order to create an understanding and appreciation of each in a positive rather than a negative sense.

BILINGUAL EDUCATION

By providing the opportunities for successful participation and achievement, students are encouraged to develop acceptance of themselves and of others through social interaction.

CAREER EDUCATION

Career education is an educational approach which seeks to provide students with the knowledge and skills necessary for becoming self-fulfilled and productive members of society. It incorporates large components of the humanistic and experiential learning movements, and seeks to educate the total person. It is as concerned with the development of basic academic skills as it is with the development of career awareness and occupational skills. It seeks to expand, not narrow, the learner's career horizons by incorporating into the regular curriculum concepts of personal growth and career development. Career education is a process, not a product. It is a process which seeks to make the educational experience more meaningful through bridging the gap between what is taught in the classroom and what the learner perceives as going on in the "real" world.

To accomplish this, it offers a variety of strategies sculpted around the concept of working its eight essential elements into the classroom on a daily basis. These elements are:

- .self awareness
- .decision-making skills
- .attitudes and appreciations
- .economic awareness
- .educational awareness
- .career awareness
- .beginning competencies
- .employability skills

Such elements as career awareness, educational awareness, and economic awareness seek to inform the learner of the broad vista of career possibilities; establish a link between what is being taught in school and what goes on in the world outside the classroom, and give the learner an understanding of the roles of consumer, producer, and provider as these operate in the larger economic society.

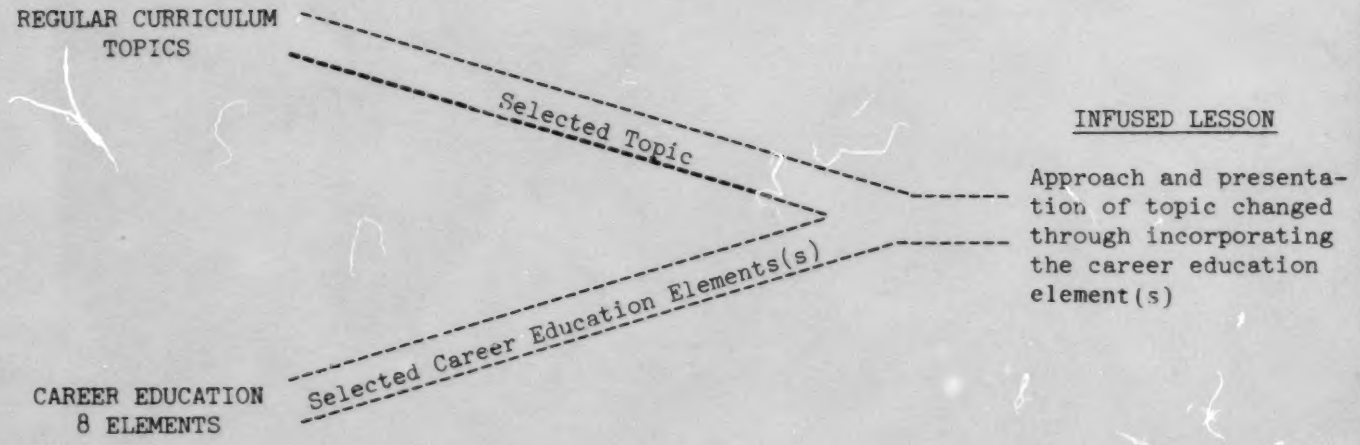
Such elements as self-awareness, decision-making skills, and attitudes and appreciations seek to give learners insight into their own abilities, interests, and thought processes; and help them understand the dynamics of decision-making:

foreseeing consequences, considering alternatives, making a decision, acting on it, and assessing the outcome; provide them with decision-making experiences in real and simulated situations; assist them in exploring personal values, and in relating these values to school experiences and possible career options.

Such elements as beginning competencies and employability skills seek to give learners a strong foundation of basic academic and manipulative skills essential to success in school and work and provide them with the specific skills necessary for further education or training, or for entry-level employment. An emphasis on "hands-on," learning by doing, is a shaping factor of all career education.

The main strategy for implementing career education in the classroom is infusion. Infusion is the incorporation of at least one of the eight career education elements mentioned above into the regular curriculum, giving the resultant lesson, be it math, science, language arts, social studies, or some other subject area, a career education focus (see diagram).

Career education is much more, then, than just teaching about jobs. On the following pages, basic understandings for each grade, K - 9, are presented to provide a framework for career education implementation at the classroom level. These outcomes are adapted from the National Career Education Model Goal Statements.



In addition to the infusion of a career education element, occupational information may frequently be incorporated in a lesson. The Basic Occupational Clusters into which careers are grouped are:

Health
Marine Science
Consumer and Homemaking Education
Manufacturing
Marketing and Distribution
Public Service
Agri-Business and Natural Resources
Communications and Media
Transportation
Fine Arts and Humanities
Personal Services
Construction
Environment
Business and Office
Hospitality and Recreation

CAREER EDUCATION KINDERGARTEN

ELEMENT	BASIC UNDERSTANDING
SELF AWARENESS	The individual has rights and responsibilities at home and at school.
DECISION MAKING	Decisions are based on motivating causes and lead to resultant consequences.
ATTITUDES AND APPRECIATIONS	Each person is an important component of the home unit.
CAREER AWARENESS	People at home and at school have different jobs.
ECONOMIC AWARENESS	Some items are available in the home unit; others are needed, and still others are wanted.
EDUCATIONAL AWARENESS	Similar kinds of roles exist at home and in school.
BEGINNING COMPETENCY	Specific tools are necessary to specific kinds of work.
EMPLOYABILITY SKILLS	Sharing and cooperation are necessary to complete many tasks.

CAREER EDUCATION GRADE ONE

ELEMENT	BASIC UNDERSTANDING
SELF AWARENESS	The individual is valuable as a person and as a part of a group.
DECISION MAKING	An individual's decisions have personal consequences.
ATTITUDES AND APPRECIATIONS	Each member of the group in the school setting has something to contribute to the whole.
CAREER AWARENESS	Jobs done by people at home and people in school relate to the functioning of the general community.
ECONOMIC AWARENESS	The community depends upon the exchange of goods and services.
EDUCATIONAL AWARENESS	Roles in school have similarities to and differences from roles at home.
BEGINNING COMPETENCY	Mastery of basic skills is essential to success in school.
EMPLOYABILITY SKILLS	Each individual develops rules with others, accepts direction, and takes responsibility.

CAREER EDUCATION GRADE TWO

ELEMENT	BASIC UNDERSTANDING
SELF AWARENESS	People have different capabilities and limitations.
DECISION MAKING	Problems can be analyzed for their alternative solutions. These can be expressed verbally and in written form.
ATTITUDES AND APPRECIATIONS	Getting along with other people is important.
CAREER AWARENESS	There is an interdependency of jobs necessary to maintain the community.
ECONOMIC AWARENESS	The barter system and the money exchange system are two different ways to operate an economy.
EDUCATIONAL AWARENESS	Life roles in the community are related to the development of basic skills.
BEGINNING COMPETENCY	There is a variety of communication tools which affect lifestyle and career choice.
EMPLOYABILITY SKILLS	Ways of interacting affect achievement of individual and group goals.

HEALTH EDUCATION

With our increased attention to the current health issues of nutrition, environmental stress, drug and alcohol abuse, overpopulation, and the inequality of health care, the concern for the health of our children is perhaps greater today than ever before.

Health education of the school-age child supplements and reinforces efforts at home and in the community. This education for health represents a major challenge to our society. While the causes of many of today's health problems are known, and to a great extent preventable, we nevertheless find that children are unwilling or unable to make the proper choices for better health.

The emphasis in health education, therefore, must be in helping the pupil-learner make informed decisions about his or her health behavior. To be successful in this regard, children should be personally involved in defining their own goals and actions, while guided by parents and teachers toward evolving an acceptable means for achieving positive health behavior within their own framework of values, beliefs, and resources.

Such changes in behavior, to be long-lasting and practiced regularly, must be a personal decision. While there are many factors that enter into the decision-making process, our primary responsibility is in providing children with a body of knowledge as a starting point. The information contained in this publication is intended to assist in this learning process. Though it provides the basic health learnings for the district schools, it should be noted that other curriculum resources are available to help the classroom teacher in planning creative approaches to the health instructional program.

Health education can have a significant role in the school curriculum if recognized as an important means for achieving general human understanding and improving the quality of life. With support from the school and community, these worthy goals can be realized.

LIBRARY MEDIA

The library media program is a service, an instructional and management system shaped by the school's philosophy, its learning objectives, the characteristics of learners, teachers' skills, the curriculum, and the organization of the students for learning. The librarian's role is the implementing of this program so that learners can develop the ability to find, generate and apply information. The program provides:

- a systematic introduction to books, films, and recordings, and instruction in finding, analyzing and using information and creating new media;
- consultation services in the use of media resources, equipment, and facilities for the improvement of instruction;
- environments which foster the effective use of media resources, both human and material;
- production of materials created to meet specific needs of students and teachers.

The Library Media Center is a laboratory where the use of all resources is purposeful, planned and integrated with classroom teaching. Its use is intended to individualize instruction.

Although "library media" is not a subject area, it is related to all content areas. There are competencies and skills to be learned through repeated use of library resources in a variety of subject contexts. The four levels of development in the use of library media are sequentially:

- learning to use tools to locate materials
- learning to select material appropriate for the purpose and type of information needed
- learning various ways in which selected material can be used most effectively
- developing critical judgment in evaluating materials with regard to their suitability, accuracy, authenticity, bias and propaganda.

A complete skills program must include all four levels in each grade. The key to the success of the program is the integration of the teaching of library skills with classroom instruction. Attempts to teach skills in isolation may lead to student frustration and seriously impair the student's ability to use libraries independently and intelligently.

MATHEMATICS

The mathematics curriculum involves the development of ideas and skills related to the areas of arithmetic, problem solving, measurement, geometry, probability, statistics, graphs, logical thinking and algebra.

The program is logical, systematic and developmental. The mathematics follows a spiral pattern in that the development of concepts and operations is repeated at increasing levels of difficulty.

In the primary grades, pupils manipulate, arrange and work with objects and other physical materials to observe relationships that can be symbolized in mathematical terms.

Beginning with collections of physical objects in the classroom, children move from non-verbalization to verbalization and symbolization. Operations are introduced with activities on sets of concrete objects. By exploration and play, children learn the number facts of arithmetic and the meaning of each operation in a concrete way.

At the same time that arithmetic concepts and skills are being developed, concepts from algebra, geometry, problem solving, and measurement are introduced. Children observe and later verbalize relations between numbers and their graphs on the number line. Fundamental operations with whole numbers, fractions, and decimals are developed gradually. Experimentation and discovery are methods used to help pupils develop an understanding of important properties of our number system, properties of geometric figures, and measurement ideas - both metric and customary.

In the intermediate and junior high school years, the scope of mathematics content is broadened to include more geometry, arithmetic, probability, and algebra. The students come to understand mathematics as a unified whole by perceiving interrelationships among concepts, skills and knowledges. They learn to apply the various branches of mathematics to science, industry, career and consumer education and citizenship. They come to appreciate mathematics as an indispensable tool for living in our technological society.

MUSIC

One of the reasons for the growth of music education has been the recognition of the important role that music plays in the life of the child. Through musical experiences the child grows in self-understanding, self-awareness and self-expression. Music is an an area of the curriculum that is concerned primarily with subjective responses and affective growth.

Music as a spectator activity is rapidly diminishing. Children want more out of music than simply being a spectator on the sidelines They want to "do" music. They want to make music with their voices; on a drum, guitar, steel drum, recorder, clarinet or any musical instrument.

Making music is an important form of individual expression; listening to music is a vital aspect of a more meaningful inner life. It is the school's responsibility to provide children with the opportunity and means of developing their natural musical talent to the utmost. They should be given the opportunity and the means to share in the making of music, alone, and in groups. They should be provided the atmosphere in which to appreciate the musical contributions of all people and to share in the wealth of the world's musical literature.

Music education must reach out to meet the needs of all children, from the serious music student to the child who wants only to enjoy music. Those for whom music has become a source of personal satisfaction become living testimonials to quality music education.

PHYSICAL EDUCATION

The goal of physical education is to provide children and youth with regular, planned, vigorous physical activities on a daily basis which will serve to promote physical fitness and cardiovascular efficiency and help to prevent heart disease. Additional benefits of physical education include socialization in a guided setting, an improved self-image, recognition of the talented and gifted student of dance, sports and gymnastics, and opportunity for the development of interests and leisure-time activities.

There is evidence that children perform better physically once they understand the concepts of movement. Therefore, movement education is essential in the elementary school grades. It is ideal for developing awareness of space, direction, pathways, levels, body parts and uses, manipulative skills, locomotor and non-locomotor skills. It offers experiences for individual performance, devoid of the constraints of group competition. In grades K-4, there is a stress on movement skills and activities such as song plays, rhythms, dance, simple stunts and games which reinforce and enhance movement concepts. In grades 5-6 movement concepts are reinforced and applied in stunts and tumbling, apparatus, team and individual sports, dance, and physical fitness. In grades 7-9 there is an even greater emphasis on participation in a variety of games, sports, dances, gymnastics, martial arts, and physical fitness which may serve students as lifetime activities and interests.

All activities are geared to both boys and girls in a coeducational setting, and are adaptable to the needs and interests of special (handicapped) students, as required by recent legislation.

It is expected that both classroom teachers in the elementary schools and physical education specialists in grades K-9 will be able to utilize the Minimum Teaching Essentials and the new curricula on which they are based.

SCIENCE

In these times of great scientific advancement and opportunity, we are increasingly dependent upon a scientifically literate population. Our young people must be guided to explore, to discover, and to understand the scientific concepts which will be of value to people in a changing world. Science meets the needs of all pupils since it offers them endless opportunities to explore, to manipulate, and to discover as they strive to find the what, how, and why of the world around them. The pupil-oriented laboratory science program is designed to provide a variety of experiences in the form of laboratory investigations, demonstrations, trips, and projects which will appeal to all children of varying backgrounds and interests.

The design of the science program provides a set of basic experiences and instructions for which all pupils are responsible. Pupils are frequently exposed to familiar objects as a basis for study. New ideas, laboratory skills, and science vocabulary are introduced at a pace which permits easy assimilation. Understandings and interrelationships are constantly reinforced through frequent referral to previous studies. In addition, lessons and units contain concrete suggestions for stimulating a more in-depth study by providing extended enrichment studies for students whose interests and abilities warrant them.

The science content combines the two components of science instruction: process and knowledge. To accomplish this, the following approaches have been used in teachers' guides.

There has been a greater stress on the important concepts underlying each of the disciplines of physics, chemistry, biology, and earth science, and the interrelationships among them.

Laboratory investigations and experimentation have been integrated into the science lessons where student involvement would make the greatest impact. There has been a greater emphasis on critical thinking, investigation, and problem-solving as ways of learning.

SOCIAL STUDIES

The curriculum in history and the social sciences has been guided by several major considerations. These may be summarized as follows:

It emphasizes the teaching of concepts rather than the accumulation of data. The curriculum has been predicated on the same theory of learning that inspired recent changes in the teaching of science and mathematics. Instruction should focus on the development of critical thinking. The student must learn to "think as a scholar" -- to search out and deal with authentic source materials, to use techniques of inquiry and discovery, and finally, to arrive at conclusions supported by evidence.

It seeks to provide all students with the values, skills, understandings, and knowledge needed to cope with the pressing social problems of our age. We live in an era of change and challenge, a time when new and complex forces are reshaping our society. Students must recognize the sources of change and be prepared to deal effectively with issues raised by change. They must also strengthen their commitment to democratic values.

It attempts to incorporate basic concepts drawn form the disciplines of history and the social sciences. Each discipline offers a set of basic concepts variously known as "key ideas," understandings, or generalizations. These concepts provide a structure around which learning may be organized within each grade.

It attempts to develop skills and research techniques sequentially. The curriculum provides important tools for analysis and encourages the use of objective, rational methods in the study of contemporary problems.

It attempts to provide learning activities that aim at conceptualization through techniques of inquiry and discovery. Probing discussion questions, careful analysis of primary source materials, case studies of concrete social phenomena, the use of contrasting evidence to underscore man's varied social responses -- these and other strategies are used to obtain pupil interest and to develop understandings.

No one method, however, is mandated. Children learn in many different ways. The learning process justifies a variety of techniques or strategies and a wide range of teaching materials.

It emphasizes the use of multimedia resources rather than the traditional textbook. Especially useful are the audiovisual materials of instruction -- motion pictures, filmstrips, maps, globes, transparencies, 8 mm. single-concept films, programmed instruction, records, tapes, pictures and other non-book resources.

WORK STUDY SKILLS

Work study skills are those which students require in order to study, to work in class individually or in small groups, to do homework assignments and independent research projects, and to find information for purely personal needs and interests. These skills are used in all subject areas and are developed in a continuum. For example, a kindergarten child finds a picture file of farm animals and selects a cow to illustrate a story. An eighth grader uses the Readers' Guide to Periodical Literature to obtain articles on environmental pollution in N.Y.C. Both are locating and selecting information, just as a student following verbal instructions for setting up a terrarium and a student reading directions on a mathematics test are both using the skill of following directions.

In this bulletin work study skills used in all subject areas are presented for each of three levels, K-2, 3-5, 6-9. The skills are grouped in five categories: following directions; locating information; selecting, recalling, and evaluating information; organizing information; and using graphic representation and investigative tools.

In addition, there is an emphasis on applying these skills to multimedia sources of information. We live in a world rich in communications media. Students need to be guided in developing responses, both to the information received and the effects of different media on the information presented. To do this students must be given opportunities for comparison and contrast.

The library-media center provides the means for meeting this need. Classroom teachers use the expertise of school librarians in cooperatively planning assignments which incorporate library research and media skills. Teachers and librarians also work jointly in helping children learn these skills. But it is the classroom teacher who must provide the impetus and perseverance necessary for students to acquire these skills in sustained and consistent use.

It is the responsibility of all teachers to (1) provide assignments which, in total, require all the work study skills for that level (2) to analyze which specific skills are needed to complete a particular assignment and (3) to make certain those specific skills are taught as an integral part of that assignment in every subject area. For the skills which require use of library resources, librarians have the responsibility to consult with the teachers on how specific skills may be applied to the topics teachers plan to teach.

Communication Arts

LISTENING, SPEAKING, READING, WRITING GRADES K-3

Kindergarten 27

Grade 1 29

Grade 2 33

Grade 3 37

COMMUNICATION ARTS

Spoken and written language is the heart of the communication arts curriculum. The purpose of all language is to communicate. The speaker must speak so as to be understood; the listener must learn the skills of effective listening; the writer must develop the skills for communicating complex ideas; the reader needs all the complex skills necessary to absorb the written ideas of others.

In terms of education, increasing effectiveness in the four language processes -- listening, speaking, reading, and writing -- is based on two important premises:

When children arrive in school they already have achieved a degree of proficiency in at least one spoken language.

This ability is the beginning and the central tool for all learning which will ensue in the student's years of schooling.

As students mature physically and psychologically, their language skills spiral upward and outward together. The more words and ideas they can utter and understand, the more words and ideas they will be able to read and write.

In the early grades, children learn to appreciate and tell stories, decipher the code of writing, make phonic-graphic correspondence, and relate stories and ideas to their own thoughts and feelings. At the same time they grow in organizing ideas, using the structure of language, increasing vocabulary and learning the basic skills of spelling and penmanship.

By the middle grades, students are ready to apply their reading skills to content areas -- science, mathematics, social studies. They grow in sophistication, listening more perceptively, expressing themselves more articulately, and writing more fully and in greater depth.

In grades 7-9 students are gradually broadening their experience in a variety of literary genres, including selections from the past and present and familiar and foreign cultures presented in a range of styles and viewpoints. At the same time they are gaining skill in specific strategies for obtaining information in the content areas. They are also acquiring critical viewing and listening skills for appreciation and evaluation of film, radio, and television. In their oral and written communication students are ready to develop style and greater clarity of expression.

Thus, the goal of the communication arts is the development of language power so that students may engage effectively in communication with others orally and in writing, react perceptively to the spoken and written word, gain information from written and recorded materials, and understand the effects of communication on thinking and behavior. Ultimately, the goal is to grow in human understanding, in sensitivity, in responsiveness, and in creativity. At all times the student must be made aware that all the processes and skills taught in the communication arts curriculum are a means to this desirable end.

The Minimum Teaching Essentials in Communication Arts is divided into three strands:

Listening and Speaking stresses perceptive listening and effective oral communication.

Reading and Literature emphasizes reading as a means of gaining pleasure and information while developing necessary processes and skills.

COMMUNICATION ARTS

Writing is presented as expressional and functional with the conventions of writing taught only as aids for the primary purpose of writing -- communication with a reader.

The division of the curriculum into these strands is merely for ease of organization. In the classroom, listening, speaking, reading literature or content area materials, and writing are integrated in the learning experience.

This approach is holistic and ongoing. While the skills and knowledge presented at a grade level constitute the minimum which should be taught before children leave that grade, it does not mean that the same skills and knowledge may not be taught earlier or later. Language develops along a continuum and teachers are responsible for learning opportunities which engage the individual child, whatever his or her point on the continuum. Throughout the years of a child's education, learning in all strands of communication arts grows in depth and complexity as the child grows in confidence and maturity.

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
LISTENING AND SPEAKING	Listening is preparatory to developing a discriminating ear for the sounds and patterns of language. *pp. 40-2 Listening to stories develops an acquaintance with literature of the past and present. *pp. 53-54 Listening to stories develops knowledge of the structure of stories. *p. 54 Listening develops skill in identifying main ideas and sequence of events, and in understanding simple cause-and-effect relations. *pp.48-50 Language is a code for expressing ideas. *p. 71 Word order conveys meaning. *p. 72 Ideas can be expressed through speaking. *p. 64 The art of clear, pleasant, audible speech is developed gradually. *p. 66 Personal narratives follow a chronological order or a simple cause-effect relationship. *pp. 66-68 Informal modes of communication (e.g., conversation, discussion, creative dramatics) can lead to a sharing of ideas and thoughts. *p. 66 Questions generally require appropriate responses using full or part sentences. *p. 18 Social amenities (such as "please" and "thank you") are important.
READING AND LITERATURE	
PLEASURE AND INFORMATION	Literature gives pleasure. *p. 30 Literature improves self-understanding. *p. 52 Literature aids in understanding the behavior and values of others. *p. 52 Illustrations aid in understanding the literature. *p. 337

*Handbook for Language Arts: Pre-K, Kindergarten, Grades One and Two (Curriculum Bulletin, 1965-66 Series, No. 8)

** Sequential Levels of Reading Skills: Pre-Kindergarten--Grade 12 (Curriculum Bulletin, 1967-68 Series, No. 4)

Page references provide amplification or identify the source of the particular item and show related materials.

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
Stories	A story has a set structure with a beginning, a middle and an end. *p. 52 Real-life characters are different from "make-believe" characters. *p. 52 Stories are varied in type and include the following: folktales, Bible stories, animal stories, nature stories, and stories about people, places and things. *pp.378-79 Stories have different types of settings, varying in both location and time. *p. 52
WRITING	
CREATIVE AND FUNCTIONAL	Pupil-dictated stories or group stories express feelings and describe experiences. *p.70 Drawings and paintings express reactions to literature. *p. 70 Drawings and experiences are a base for learning oral and written phrases and sentences. *p. 70
WRITING CONVENTIONS	
Handwriting	Practice in handling tools and materials develops dexterity and control. *p. 70 Writing proceeds from left to right. *p. 70 Drawings and possessions are identified by writing one's name in manuscript form. *p. 70

COMMUNICATION ARTS GRADE 1

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
LISTENING AND SPEAKING	Meaning is obtained through listening. *p. 77 Having a reason for listening aids in comprehension.*p. 78 Listening to simple directions develops a sense of order. *p. 90 Listening to stories develops skill in identifying main ideas and details and sequential order, and in recognizing implied ideas. *p. 86. Teachers' names and classmates' names are appropriate forms of address. *p. 126 Conversation is the spontaneous informal sharing of thoughts with the teacher and other pupils. *p. 126 Telling favorite or original stories or incidents provides opportunities for sharing ideas orally. *p. 128 Formal modes of communication (announcements, prepared statements, individual and committee reports) can lead to the sharing of thoughts and ideas.*p. 127 Ideas may be expressed in different sentence patterns. *p. 153 Intonation pattern is a clue to meaning; variations in voice show feeling and emotion. *p. 80 Asking questions is a way of communicating a need. *p. 126 Creative dramatics and puppetry stretch the imagination and help to interpret experiences. *p. 129 Oral reading by teacher and pupils demonstrates how phrasing, stress, pauses, and intonation affect meaning. *pp. 117-118 Choral speaking contributes to effective interpretation of poetry and the enjoyment of language. *p. 212 Voice production and enunciation require awareness and practice. *p. 80
READING AND LITERATURE	
PLEASURE AND INFORMATION	Literature is language at its best. *p. 91 Literature evokes many different emotional responses -- humor, grief, excitement, wonder, anger. *p. 92 Libraries are the depositories of many different kinds of information and literature to be found in books and other media. *p. 94

*Handbook for Language Arts: Pre-K, Kindergarten, Grades One and Two (Curriculum Bulletin, 1965-66 Series, No.8)
**Sequential Levels of Reading Skills: Pre-Kindergarten -- Grade 12 (Curriculum Bulletin, 1967-68 Series, No. 4)

Page references provide amplification or identify the source of the particular item and show related materials.

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
Stories	A plot unfolds through a series of episodes leading to a logical conclusion. *p. 380 Characters behave in ways which are believable. *p. 381
Biography	Stories are written about the lives of real people. *p. 380
Poetry	The enjoyment of poetry is extended through reading aloud and listening to others recite. *p. 372
Exposition	Factual materials give useful knowledge about the world.
PROCESSES Following skills generally applicable to content areas, as well as to literature	
Comprehension	
Literal	Details in a series of connected sentences may tell about the characters, setting, time, place or plot. **p. 24 Details relevant to the main idea of a selection can be found in illustrations, titles, and captions. **p. 6 The main idea of a selection may be expressed in one or more statements. **p. 6 Sequence is the chronological order of events in narratives **p. 28
Inferential	An idea which is not directly stated must often be inferred **p. 6
Critical	Some stories or poems may be more enjoyable than others to individual pupils. Stories may be real or make believe. **p. 6
Alphabet Knowledge	Each letter of the alphabet, both upper and lower case, has a name. **p. 8
Auditory Discrimination	Words have distinguishable sounds. **p. 5
Visual Discrimination	Words have distinguishable gross and fine differences. **p. 4

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
Phonic Analysis	(For more detailed information on the various phonemes see the tables appended to this bulletin.) For each single consonant there is a sound-symbol relationship. Single vowel letters have short (unglided) and long (glided) sounds (phonemes). Some consonant letters may be combined with other consonant letters to form a consonant blend. Some words have similar combinations of letters and similar sounds (word families). New words can be formed by substituting new phonic elements for known elements.
Word Meaning	
Vocabulary Development	A limited number of words may be recognized by their shape (configuration) as sight words. **p. 8 Words which do not convey meaning (function words) can be recognized on sight, e.g., the, but, for. **p. 8 Words may have synonyms or antonyms. **p. 8
Contextual Clues	Word meaning may be obtained from the sense of the sentence and/or the surrounding sentences. **p. 22
Structural Analysis	A root word (free morpheme) is the base to which other words or word parts may be added. **p. 18 Words may have plural endings. **p. 16 Words may have inflected endings (s, ed, ing). **p.16 Compound words are formed by combining two root words each of which contributes to the meaning of the new word. **p. 16
WRITING	
EXPRESSIONAL AND FUNCTIONAL	Writing may record or express thoughts and needs. *p.131 Anecdotes and incidents based on individual and class experiences are the bases for written expression. *p.133

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
EXPRESSIONAL AND FUNCTIONAL	Ideas may be expressed in different sentence patterns. *p. 153 Practice in composing can be the result of cooperative and/or individual dictation. *p. 133
WRITING CONVENTIONS Taught as needed in actual writing, NOT as isolated skills	
Sentence Sense	Word order may establish meaning. *p. 153
Punctuation	Every sentence begins with a capital letter and has a final punctuation mark. *p. 136
Spelling	Spelling Words List C comprises words most frequently used in student writing for that grade; new words are added from reading, content areas, and experiences. *p. 176 The list is further supplemented by each student's individual bank of spelling words based on reading and writing needs.
Usage Developing communication is stressed, rather than correct usage.	Variations in usage patterns are acknowledged. *p. 155
Handwriting	Manuscript writing looks very much like print. *p. 160-175 Manuscript letters, composed of upper and lower case, require only two basic strokes; a circle or parts of a circle and straight lines. *p. 160

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
LISTENING AND SPEAKING	A variety of listening activities broadens the speaker's oral vocabulary. *p. 272 Listening develops skill in selecting main idea, comparing and contrasting details, recognizing sequential order and cause and effect relations. *pp. 189-194 Vocabulary growth enhances the ability to express ideas clearly and effectively. *p. 269 The language deemed appropriate at school may be different from the language of home and community. *p. 275 Discussion is the method by which ideas are expressed freely and attention is given to other points of view. *p. 232 Formal modes of communication (announcements, invitations, prepared statements, performed drama, individual and committee reports) can lead to the sharing of thoughts and ideas. *p. 236 Comparison and examples are used for clarification. *p.258 Oral reading requires understanding, phrasing, stress, clear enunciation, and dramatic quality. *p. 222
READING AND LITERATURE	
PLEASURE AND INFORMATION	Literature is read to broaden horizons and to gain insight into basic human values. *pp. 195-197 Literature develops critical thinking and imagination for deeper interpretation. Literature leads to greater knowledge of oneself. Literature leads to an understanding of other cultures. Literature read aloud increases pleasure and helps to interpret textual ideas. *pp. 222-223 Literature is the work of individual authors and illustrators. *p. 196
Stories	
Folk Tales	Each separate culture has its lore of tales transmitted over a long period of time. *p. 378

*Handbook for Language Arts: Pre-K, Kindergarten, Grades One and Two (Curriculum Bulletin, 1965-66 Series, No.8)
**Sequential Levels of Reading Skills: Pre-Kindergarten--Grade 12 (Curriculum Bulletin, 1967-68 Series, No. 4)

Page references provide amplification or identify the source of the particular item and show related materials.

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
Fairy Tales	Fairy tales are folk tales that describe beings with magical powers: fairies, giants, trolls. *p. 378
Animal Stories	Animal stories frequently employ animals who have human characteristics and often show us how to behave. *p. 379
Biography	Biographies relate the lives of real people. *p. 380
Poetry	Poems use words creatively and have a singing quality. *p. 372 Poems offer vivid descriptions of nature and human feelings.
Exposition	Factual materials give useful knowledge about the world.
PROCESSES Following skills generally applicable to content areas, as well as to literature	
Comprehension	
Literal	Details may express similarities and differences. **p.27 Titles generally relate to the main idea or subject of a selection. **p.24 The sequence of events of a reading selection may follow a logical order. **p. 28 Cause and effect relation may be clearly stated. **p. 6 The main idea of a selection may appear in various positions in a selection. **p. 24
Inferential	The main idea of a selection may be inferred from the cumulative details of that selection. **p. 30 A series of events may be predicted by reviewing sequence and cause-effect relations. **p. 6 Conclusions concerning actions, characters, outcomes, themes, and plot development may be drawn from logical inferences. **p.6

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
Critical	Selections may express authors' opinions or statement of fact. **p. 34
Word Meaning	
Vocabulary Development	Content area materials are source for expanding sight vocabulary. **p.8 Homonyms are words that have the same sound but are spelled differently and have different meanings.
Contextual Clues	Words may have multiple meanings. **p. 22 Content area words are added to vocabulary study.**p. 9
Structural Analysis	An apostrophe may be used to show possession.**p. 16 A contraction is a short way of writing two words.**p. 18 An apostrophe is used to show the omission of one or more letters.**p. 16 Some inflectional endings (s, ed) may vary in sound. **p. 16
Alphabet Knowledge	The letters of the alphabet are arranged in sequence.
Phonic Analysis	(For more detailed information on the various phonemes see the tables appended to this bulletin.) For each single consonant letter there is a corresponding phoneme (sound) relationship in the initial and final position. Some consonant letters are combined to form a single sound referred to as a consonant digraph. The consonant letters r, w, and l affect the sound of immediately precedent vowels. The consonant letters c and g have both a hard and soft sound. The letter y and the endings ed and d have more than one sound. Some consonant letters and consonant blends have variant sounds (voiced and unvoiced.) Some consonant letter combinations have silent letters. Some vowel letters are placed together to represent a single sound called a digraph. Some vowel letters are placed together to blend their sounds into a new sound called a diphthong.

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
WRITING	There are two main types of writing: expressional and functional.
EXPRESSIONAL AND FUNCTIONAL	Expressional writing conveys one's thoughts, ideas, and feelings. *p. 240 Functional writing includes factual writing: simple letters, reports, messages. *pp. 263-6 Writing letters is a method of sending a personal communication to others. *p. 263
WRITING CONVENTIONS Taught as needed in actual writing, NOT as isolated skills	
Sentence Sense	A sentence is a group of words belonging together. *pp. 273-5 Some sentences make statements; others ask questions. *p. 273
Usage	The past tense of regular verbs ends in ed, but many common verbs (see, go, buy, do, take) have irregular endings. *p. 276 Sentences begin with capital letters and end with periods or question marks. *pp. 242-246 Exclamations end with exclamation points. The pause in speaking corresponds to punctuation marks.*p.273
Spelling	Spelling Words List C comprises words most frequently used in student writing for that grade; new words are added from reading, content areas, and experiences. *pp.289-290 The list is further supplemented by each student's individual bank of spelling words based on reading and writing needs.
Handwriting	Manuscript writing becomes more precise and smaller in size. *p. 287

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
LISTENING AND SPEAKING	Listening to stories develops skill in identifying main ideas and details, sequential order, understanding cause and effect relations, and drawing conclusions and predicting outcomes. *p. 20-23 Hearing may be passive and involuntary; listening is a voluntary activity. *p. 23 Language is spoken on two levels of usage -- formal and informal. Each is appropriate to a given situation. *pp. 138-139 An interview with another person is a way of obtaining information. *p. 97 Oral reading with expression enhances enjoyment and comprehension. *pp. 79-80 Choral speaking contributes toward effective interpretation of poetry and the enjoyment of language. *p. 258 Original stories are based on experiences or imagination. *p. 103 A report is tied closely to a center of individual or group interest or curriculum area. *p. 99
READING AND LITERATURE	
PLEASURE AND INFORMATION	Literature exists in print and other media. *p. 39 Literature exists in varying lengths and is often read in segments. *pp. 39-41 Literature is created in different genres, each having identifying characteristics, e.g., short story, novel, biography, drama, and poetry. *pp. 39-40 Individual authors may have written many books with similar ideas and/or locale and characters. *pp. 39-41
Stories	In addition to plot and character, stories have settings which express time-when and place-where. *p. 348
Poetry	The meaning of poetry is enhanced by an awareness of cadence, beat, and figurative language. *p. 52

*Handbook for Language Arts: Grades Three and Four (Curriculum Bulletin, 1969-70 Series, No.6)
**Sequential Levels of Reading Skills: Pre-Kindergarten--Grade 12 (Curriculum Bulletin, 1967-68 Series, No. 4)

Page references provide amplification or identify the source of the particular item and show related materials.

COMMUNICATION ARTS GRADE 3

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
Exposition	Factual materials give useful knowledge about the world.
PROCESSES Following skills generally applicable to content areas, as well as to literature	
Comprehension	
Literal	Stated details in content area materials may be isolated as sub-headings in chapters or parts of chapters.**p. 27 The main idea of a selection may be directly stated in various locations within the selection. ** p.24 Clue words such as first, next, and last indicate sequential order of events. ** p.28 Clue words such as because and as signal cause and effect relations. ** p.29
Irferential	Cause and effect relations not directly stated may be determined. ** p.31 Sequential order is a factor in predicting outcomes and drawing conclusions. ** p.28
Critical	Experiential background and knowledge affect evaluation of written materials. ** p.34
Word Meaning	
Vocabulary Development	Vocabulary also expands through including content area words. ** p.9
Contextual Clues	Word meaning may be found from the context in a direct statement, through a synonym or through apposition. ** p.22
Structural Analysis	A prefix comes before a root word and changes the meaning of the word. ** p.18 A suffix comes at the end of a root word and changes the meaning of the word. ** p.18 Comparatives and superlatives change the meanings of adjectives, (er, est, more, most). ** P.18

COMMUNICATION ARTS GRADE 3

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
Alphabet Knowledge	Letters of the alphabet have both a manuscript and cursive form. **p. 8
Phonic Analysis	(For detailed information on the various phonemes see the tables appended to this bulletin.)
WRITING	
CREATIVE AND FUNCTIONAL	Careful observation of objects, places, people forms the basis for good writing. *p. 110 The realm of the child's private and fantasy world may become the subject for prose and poetry. Factual writing is necessary to provide records. *p. 105 Logical development of ideas enables one to think and write clearly. *p.104 Good writing requires revision. *p. 299
WRITING CONVENTIONS Taught as needed in actual writing, NOT as isolated skills	
Sentence Sense	A simple sentence is a group of words belonging together and conveying meaning. *p. 135
Usage	The subject of a sentence agrees with the predicate. *p. 140
Punctuation	Basic marks of punctuation: the comma, period, question mark, and exclamation point, bring more clarity to the written word. *pp. 134-135

Spelling

Spelling Words List C comprises words most frequently used in student writing for that grade; new words are added from reading, content areas, and experiences.*p.162
The list is further supplemented by each student's individual bank of spelling words based on reading and writing needs.
Words may be spelled according to a common structural element.
Regular plurals are formed by adding s.*p. 334
Regularly inflected verbs add s, ing, and ed. *p. 336
Words ending in silent e drop the e before adding ed and ing.
An apostrophe shows the omission of a letter or letters in a contraction. *p. 335

Handwriting

Letters of the alphabet have both upper and lower case in manuscript and cursive forms. *p. 155

ENGLISH AS A SECOND LANGUAGE

A successful method of teaching English to non-native speakers is through the audio-lingual approach. The pupils' first contact with the language is listening. They next practice what they have heard by repetition of language patterns and a variety of oral drills. At later stages, reading and then writing are introduced. Grade level curriculum specifies reading and writing objectives to be mastered by native speakers. Teachers of English as a second language (ESL) should know the objectives to insure that non-native speakers will also achieve these competencies.

The content of the curriculum at any level will depend on several factors: the age of the pupils, the duration of the ESL program, and the second-language ability of the students. There are usually three levels of instruction: beginning, intermediate, and advanced. Levels of instruction are necessary to insure that the language objectives are introduced in a systematic fashion. The reading, writing, and auditory objectives are also integrated into these divided levels and are arranged in a hierarchy of increasing difficulty. Teachers should review the scope and sequence in language arts K-9 in this bulletin to determine the specific skills and knowledge necessary for ESL students at various grade levels. Vocabulary will vary according to the sophistication and grade level of the ESL students. It is important to note that some students in grade level 6 may be beginning ESL students while others are intermediate or advanced.

A variety of topics must be mastered by all students. They include greetings, weather, emergency situations, etc. For example, students in all grade levels must master the patterns. My name is_____. I live at_____.

The following ESL scope and sequence will outline the topics, skills, and knowledge that should be taught. For specific examples of lesson plans and methodology, consult the Board of Education bulletins Handbook for Language Arts Pre-K-2 and Teaching English as a Second Language in the Middle Grades. Lessons in science, math, social studies and music may be found in the experimental bulletin Teaching English as a Second Language in The Elementary Schools.

BEGINNING ESL

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
STRUCTURAL ANALYSIS	
Articles	An and the, as used preceding initial sounds, are introduced. An and a, as used preceding consonant and vowel sounds, are introduced.
Nouns	Nouns can be singular or plural, e.g., bank/banks, boy/boys, glass/glasses. Some nouns are irregular, e.g., man/men; child/children.
Verbs	Am, is, are and regular verbs are used in the present tense. Was and were and regular ed verbs in all terminal sound categories, e.g., walked, played, wanted, are past tense verbs. To be going to_____ is a future tense pattern.
Subject Pronouns	I, you, he, she, etc. replace common and proper nouns in subject positions.
Demonstratives	This/these and that/those are used in declarative and interrogative sentences.
Object Pronouns	Me, him, her, it, them, us, you replace common and proper nouns in object positions.
Possessive Adjectives	My, your, his, her, its, our, their replace common and proper possessive singular and plural nouns in describing ownership.
Possessive Pronouns	Mine, yours, his, hers, its, our, theirs replace common and proper possessive nouns.
Questions	Do and does are used to ask and answer yes/no questions. Who, what, when, where, and why are used in information questions with do, does, and to be.

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
STRUCTURAL ANALYSIS (continued)	
The Negative	The negative is formed with the auxiliaries *do* and *does* and the verb *to be*.
READING	
Alphabet	The same letters may have different sounds.
The Sentence	Sentences have a "doer" and a "receiver." Sentences have meaning.
Paragraph	Paragraphs have main ideas and supporting ideas.
Punctuation	Certain marks of punctuation are essential to enhance better reading comprehension. The period (.) The comma (,) The question mark (?)
Vocabulary	Some words are similar in two languages. Student level and experience will determine the vocabulary taught.
AURAL-ORAL *pp. 23-24	
Directions	Teacher directions to students are important.
Illustrations	Identification of a picture from an oral word, oral action, phrase, oral descriptive sentence, brief oral paragraph demonstrates listening comprehension.
Consonants	Identification of consonants and consonant blends in initial, medial and terminal positions from oral words demonstrates that students hear these sounds.
Vowels	Identification of vowels in initial, medial and terminal positions from oral words demonstrates that students hear these sounds.

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
AURAL-ORAL (continued)	
Sequencing	Listing the sequence of events from an oral paragraph demonstrates that there is logical sequence of action and events.
Sentence Completion	Identification of a phrase which best completes an unfinished oral statement demonstrates knowledge of syntax.
WRITING	In grades 1-2 manuscript writing (printing) of the alphabet, familiar names, basic vocabulary, and in grades 3-6, cursive writing of alphabet, one-word vocabulary, phrases and sentences are motor skills. Single words, sentences controlled orally and read with comprehension with attention to left-to-right movement, punctuation, spacing, and letter forms are copying skills. Word, phrase, simple sentence writing of material controlled in oral production and the writing of dictated material within a student's auditory comprehension ability are dictation skills. Periods or question marks are terminal punctuation. A sentence begins with a capital letter.
SPELLING	There is no definite spelling list. However, the students should be held responsible for the spelling of the words learned in class. An oral dictation of such words should be included in weekly tests. Consult specific grade spelling list.

CHILD DEVELOPMENT FOCUS

CHILDREN'S NEEDS

Basic needs, the same for all children, are the drives that influence behavior. These needs include:

1. NEED TO BE VALUED
   A child's self-image has top priority. A child can't be "somebody" unless the child is "somebody" to someone else. Self-image must be reflected in the eyes and actions of those the child loves and values. All children must be valued for who they are, where they come from, and what they bring with them from their culture, language, desires, and expectations.

2. NEED TO DO
   Children learn by using all their senses to explore, discover, and form judgments about the things in their world.

3. NEED TO SHARE WITH PEOPLE THEY TRUST AND BE TRUSTED TO SHARE
   Children need adults who care, who can guide the children's discovery into mutually respected action, who inspire and develop competence and confidence.

4. NEED TO BE GIVEN A CHANCE TO GROW AT HIS OR HER RATE IN HIS OR HER OWN WAY
   Growth for children has many dimensions - social, emotional, physical, and intellectual. Growth is uneven and highly individual. All children do not reach the same level of growth at the same age, nor does a child grow in the same way in all areas.

79

PRINCIPLES OF GROWTH & DEVELOPMENT

Basic principles that enable persons to guide children with a degree of assurance include:

1. DIFFERENTIATION
   Development proceeds from simple to complex. In both structure and activity, development is gradual in the direction of complexity and variety. Differentiated structures and functions become organized in new and more inclusive patterns.

2. DISCONTINUITY OF GROWTH RATE
   Development is never uniform or all at the same time. Various parts and systems grow at various rates at a different time. Growth shows characteristic spurts or peaks and then slows down to periods of relative latency.

3. INTERRELATEDNESS OF GROWTH
   Every aspect of the child's life affects every other aspect. The physical and social environment as well as factors of personality and physical development affects academic achievement.

4. DIVERSITY OF GROWTH
   No two children are exactly alike. No two grow quite alike. Wide differences exist among children of the same age, the same family, and from the same community. Each child has his or her unique growth style.

80

THE TEACHING ADULT SHOULD BE FAMILIAR WITH THE LEVELS OF GROWTH IN EACH AREA, WHICH MAY OR MAY NOT CORRESPOND WITH THE CHRONOLOGICAL AGE OF EACH CHILD.

CHILD DEVELOPMENT FOCUS GRADES K - 2

OVERVIEW: Generally includes children five to seven years of age. Period is characterized by strong perceptiveness and responsiveness to cues, and acquisition as well as attempts toward mastery of skills. Changes in physical, intellectual, and social areas are geared toward preparation and adaptation to outside life, especially in the school, and the establishment of self-identify.

PHYSICAL

Five-Year-Old

- Handedness may have been established. Has fairly good large muscle development though small muscles are not yet able to manage details, e.g., tying shoes, writing, sewing.
- Energy is boundless. The child can run, jump, hop, and climb. Responds to a signal and can change directions and body movement. Can walk a straight line.
- Childhood diseases may occur to cause absence. Prefers simple foods. Reluctant to try new foods.
- Gains independence in activities - eating, using the toilet, and dressing.

SOCIO-EMOTIONAL

Five-Year-Old

- Generally appears to be calm, quiet, and well balanced. Beginning to be capable of self-criticism, eager and able to carry some responsibility.
- Enjoys the world of make-believe but often cannot distinguish between fantasy and reality. Fives dramatize and role-play incidents in home and community life.
- Child has a strong sense of possession - does not like to share - however, will share to please adults.
- Seeks praise and approval - wishes to conform and please. Explores forming relationships with other children.
- Shows signs of independence, and is able to choose his or her own activities and, based on prior experience, begins to plan and complete simple projects.

INTELLECTUAL

Five-Year-Old

- Reads pictures; can retell and invent stories.
- Can identify some letters and some words; begins to write words and names.
- Can identify some numbers on a calendar or a clock. Can count numbers in sequence to a point and then becomes confused.
- Can identify up to four objects without counting.
- Identifies some colors, sizes, shapes.
- Begins to become aware of notions of sequence, time, and distance.
- Can follow simple oral directions.

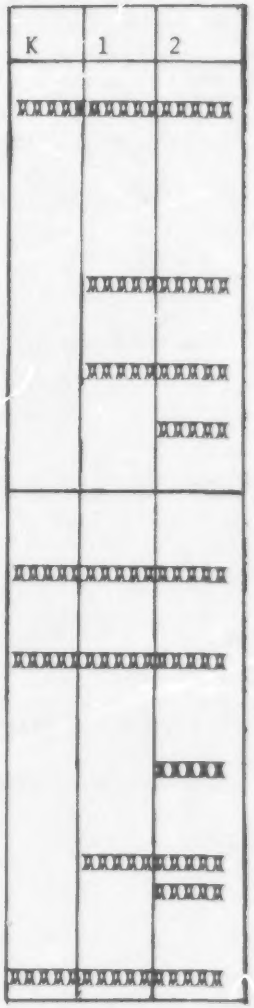
CHILD DEVELOPMENT FOCUS GRADES K - 2

PHYSICAL	SOCIO-EMOTIONAL	INTELLECTUAL
Six-Year-Old . Large muscles are better developed than the small ones but the small muscles are now able to do some writing and tying of shoes. . Child is usually able to skip by now, as well as effectively use the other gross motor movements which are incorporated in games and physical activities such as jumping rope. . Health and appetite are generally good in group situations; can be encouraged to try new foods. . High motor activity, bodily and facial; constantly in motion; boisterous. . Tends to be clumsy and takes time to get dressed or go places. Levels of activity vary from day to day.	Six-Year-Old . Expects others to fit his or her way of thinking and doing; can be arbitrary and demanding as well as extremely sensitive. . Has strong need for praise and is proud of accomplishments. . Still adapting to school life with transient wish to stay at home; may be reflected in absences. . Is self-assertive; aggressive; wants to be first; less cooperative than at five; keenly competitive and often boastful. . May go to extremes in behavior; cooperative and adequate and, at the next moment, resistant and incapable.	Six-Year-Old . Auditory and visual discriminations are heightened. . Can follow directions with greater concentration. . Demonstrates greater span of attention. . Has begun to use word attack skills to increase vocabulary. . Interest is manifested in scientific phenomena - growing things, prehistoric animals, space. . Has awareness of rules in games. . Feels comfortable with structure and schedule, and knowing what to expect. . Develops skills in many curriculum areas but needs reinforcement in knowledges and skills previously introduced.

PHYSICAL	SOCIO-EMOTIONAL	INTELLECTUAL
Seven-Year-Old . Small muscles can now do writing and some sewing. Eye-hand co-ordination has developed considerably. . There is further growth in motor ability, and there is more sustained participation in organized games. Is adept at jumping rope. . Attendance is generally good. Children have strong likes and dislikes in their dietary preferences. . Periods of activity alternate with quiescence.	Seven-Year-Old . Is sensitive to the tone and nuances of an adult's voice and responds best to indirect correction. . Maintains relationships with another child for longer periods of time. . Enjoys dramatic play but veers toward reality. The seven-year-old loves tall tales and delights in slapstick humor. . Shows a willingness to listen to others and to share ideas. Works with a goal in mind and is able to carry a project through to completion. . Develops self-confidence as skills improve. . Feels sensitive about other's reactions. Afraid of criticism or disapproval; may leave the scene rather than be exposed to criticism. . Moods of pensiveness and resistance alternate with periods of activity; concerned about his or her performance, others' evaluations of him or her. . Can be helpful to others and enjoys socialization.	Seven-Year Old . Has developed skills of inquiry and discovery to gain knowledge. . Can record simple findings. . Has a good sense of recall to help utilize previous learnings. . Listens to instructions and understands some rules. . Can listen and respond to a second direction while carrying out a first direction. . Has increasing assimilation, absorption, and integration of experiences.

WORK STUDY SKILLS GRADES K-2
ALL SUBJECT AREAS

Students acquire skills through using them consistently in assignments relating to the curriculum in each subject area. For skills which require use of library resources, librarians cooperate with classroom teachers on how specific skills may be applied to topics teachers plan to teach.



FOLLOWING DIRECTIONS

Listening to and following oral directions given step by step for:
- Proper handling of materials
- Collecting and distributing materials
- Classroom routines
- Simple tasks and learning games

Listening to and following directions given in uninterrupted sequence (step 1, 2, 3)

Independently following previously learned directions and routines

Comprehending and following pictorial or chart directions (step 1, 2, 3, 4)

LOCATING INFORMATION

Recognition and beginning use of written symbols and representative materials as aids in finding information, e.g., signs, name labels

Awareness of film, filmstrips, TV, radio, audio tapes, records, picture files, and other people as sources of information

Use of format in print materials
- Directed use of table of contents

Use of reference sources*
- (Alphabetizing to first letter)
  - picture dictionary

Familiarity with classroom, school, and public libraries
- Locating materials on appropriate level

87

* Librarians will help determine which sources are best suited for the purpose.

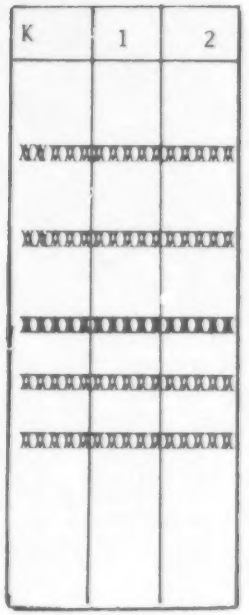
88

WORK STUDY SKILLS GRADES K-2
ALL SUBJECT AREAS

	K	1	2
SELECTING, RECALLING, AND EVALUATING INFORMATION			
Recalling and presenting orally information from real experiences, and from listening and viewing experiences	xxxxx	xxxxx	xxxxx
Comparing oral information from more than one source	xxxxx	xxxxx	xxxxx
Selecting pictures to provide information	xxxxx	xxxxx	xxxxx
Selecting best answers from several responses	xxxxx	xxxxx	xxxxx
Comparing and integrating pictorial information and information from listening or other media experiences*	xxxxx	xxxxx	xxxxx
Comparing and integrating information from other media experiences and reading experiences			xxxxx
ORGANIZING INFORMATION			
Classifying objects into groups by a single characteristic, e.g., roundness	xxxxx	xxxxx	xxxxx
Classifying words into two groups by contrasting characteristics, e.g., happy words, sad words			xxxxx
Classifying outcomes into two groups, e.g., Yes, No	xxxxx	xxxxx	xxxxx
Organizing material for a simple chart or narrative form	xxxxx	xxxxx	xxxxx
Classifying information by time sequence; by cause and effect	xxxxx	xxxxx	xxxxx
Determining categories for given information	xxxxx	xxxxx	xxxxx

WORK STUDY SKILLS GRADES K-2

ALL SUBJECT AREAS



USING GRAPHIC REPRESENTATION AND INVESTIGATIVE TOOLS

Making and comprehending diagrams of familiar places, simple experience charts, number graphs

Awareness of names of cardinal directions (north, south, east, west) and directional terms, e.g., top, left, right

Recognizing maps and globes as representative of the world and parts of the world

Manipulating equipment for investigation of a problem

Collecting evidence by means of experimentation

Kindergarten

MINIMUM TEACHING ESSENTIALS

Art 54

Health Education 58

Library Media 60

Mathematics 63

Music 64

Physical Education 65

Science 68

Social Studies 73

ART KINDERGARTEN

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
DRAWING	
*pp: 48-49 Time: 6-9 Weeks Scribbles, Lines, Shapes, Patterns and Symbols	Children draw intuitively and spontaneously. Thick and thin crayons, chalk, and felt-tip pens are used to draw.
Familiar Experiences Provide for Individual Interpretation	Symbols are created to represent people, animals, buildings, trees, and flowers. Several colors are recognized and identified.
PAINTING	
*pp: 31-32 Time: 9-12 Weeks Tempera Painting **(Introductory sequence is recommended)	One-inch brushes and 19"x22" newsprint are used. Control of the materials is gained by beginning with one color and gradually increasing the number of colors.
Designs	A variety of brush strokes, lines, and shapes is painted.
Simple Realistic Pictures	Symbols in paint are created which are similar to the symbols created in drawing. The routines of painting and cleaning up are practiced.
Fingerpainting	Finger paints are manipulated with hands and "drawn" with fingers.

* ART IN THE ELEMENTARY SCHOOLS, Grades K-6: Board of Education Curriculum Bulletin, No. 8
** ART TEACHING GUIDES, PAINTING: Board of Education Curriculum Bulletin, No. 8g
*** ART TEACHING GUIDES, PUPPETS AND PUPPETRY: Board of Education Curriculum Bulletin, No. 8h

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
MODELING WITH CLAY *pp: 66-67 Time: 6-9 Weeks Ceramic Clay and Non-toxic Clay Substitutes	The experience of manipulating directly a malleable material has educational and psychological value. Pounding, punching, rolling, and piercing clay develops strength and dexterity in the hands. Clay work is done on a board or other flat surface. Concepts are represented by adding pieces casually as work proceeds. As fingers work "into" and "through" the clay, concepts of volume and texture are evoked. The routines of working in clay and cleaning up are practiced.
BUILDING WITH BLOCKS *pp: 114-115 Time: 4-6 Weeks The Development of Coordination	The manipulation of blocks develops eye, hand, and body coordination. The number and assortment of blocks are increased.
Three-Dimensional Structures	Building with blocks progresses from linear to three-dimensional structures which require balancing for stability. Similarities between real and imaginary structures are discovered. Storing of blocks requires recognition and sorting of shapes and sizes. Interest in function of structures is developed. Toys may be added to complete concepts.

ART KINDERGARTEN

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
CONSTRUCTING WITH WOOD *pp: 123-124 Time: 3-5 Weeks Simple Design Forms	Experiments with an assortment of wooden shapes are carried on by grouping and regrouping the pieces.
Representation of Objects in the Real World	Wooden pieces are glued together for lasting construction. Concepts of balance, open spaces, and art in the round are discovered.
WORKING WITH PAPER *pp: 90-91 Time: 3-5 Weeks Tearing, Cutting, Rolling, Folding and Pasting	Tearing or cutting with scissors changes large shapes into smaller ones. Adhesive is used to attach paper pieces. Colored paper shapes and strips are combined in non-representational or simple pictorial designs and pasted on a background. Three-dimensional elements are introduced into work by rolling and folding paper. Shifting paper shapes on a background before pasting allows for flexibility and promotes experimentation in design.

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
FABRIC AND FIBERS *pp: 95-96 Time: 5-7 Weeks Combination of Materials	A variety of pre-cut cloths and trimmings is chosen and combined with an intuitive sense of design. The pliability and tactile qualities of textiles are discovered. Beads and buttons become elements of design. Cloths, trimmings, beads, buttons, and other materials can be combined on a background by using glue.
Sewing	A running stitch is used to sew "line drawings." Large needles and yarns are used on Dixie mesh, burlap, and other loosely woven materials.
PUPPETS AND PUPPETRY ***pp: 1-3 Time: 3-5 Weeks Hand and Stick Puppets	Stick puppets are created by selecting, pasting, and coloring geometric shapes of cardboard. Drawings of real or imaginary people and animals are cut out to make the stick puppets. Hand puppets are improvised from such materials as paper bags, boxes, plastic jugs, or other available containers and improved upon with a variety of trimmings such as beads, buttons, and ribbons. Puppets are manipulated with or without settings, in coordination with impromptu conversation.

HEALTH EDUCATION KINDERGARTEN

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
CLEANLINESS AND HEALTH PROTECTION *pp. 7-8, 22-24 Time: Flexible	Good personal health habits help prevent disease. Symptoms of illness should be reported to one's parent or teacher immediately. Raw fruit and vegetables should be washed before eating. Doctors and nurses help keep us well by giving examinations and immunizations.
NUTRITION *pp. 10-12, 26-28 Time: Flexible	It is important for children to have a good breakfast every day. It is important to try different kinds of food.
DENTAL HEALTH *pp. 12-13. 28-29 Time: Flexible	All children lose their first set of teeth and get permanent teeth. The dentist helps us take care of our teeth. Whenever possible, teeth should be brushed after eating. There is a correct method for brushing the teeth.
MENTAL HEALTH *pp. 13-15. 29-31 Also see FAMILY LIVING INCLUDING SEX EDUCATION Time: Flexible	Sharing and helping others create good feelings. Each child is important. Children are alike, yet different. Children have different talents and abilities, e.g., athletics, music, dance.
EYES AND THEIR CARE *pp. 15-17, 32-33 Time: Flexible	People wear glasses to see better. It is important to work and read with good light.

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
EARS AND THEIR CARE *pp. 17-18, 34-35 Time: Flexible	The ears should be kept clean. Fingers and objects should be kept out of ears. Ears should be examined by a doctor during an annual medical checkup. Hearing should be tested regularly.
SAFETY AND FIRST AID *pp. 18-20, 35-37 Time: Flexible	It is important to obey traffic signals. The police officer or school crossing guard directs traffic to help children cross the street safely. Accidents should be reported to an adult. Procedures for fire and shelter drills should be obeyed.
EXERCISE, REST, AND SLEEP *pp. 20-21, 38-40 Time: Flexible	Exercise and play help one to be healthy. Rest helps the body to build new energy. Getting sufficient sleep is important.

LIBRARY MEDIA KINDERGARTEN

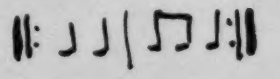
CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
ORIENTATION TO THE LIBRARY MEDIA CENTER	The library is a collection of knowledge recorded in books, records, films, tapes, pictures, and other media organized for use by its patrons. It may be used to get information or to satisfy personal interests and needs. Circulation procedures allow material and equipment to be borrowed for home or classroom use. Library media materials are designed in a variety of formats, e.g., filmstrips, picture books, cassettes or magazines. Library media materials have location symbols, e.g., FS, CS, P, E, or color codes. Good library citizenship involves: opening books properly so that the spine is not broken; handling audiovisual materials so that they are not marred; handling books so that pages are not torn. There are similarities and differences in the materials and services offered by school and public libraries.
ORGANIZATION OF THE LIBRARY MEDIA CENTER	Library media centers have an arrangement for materials depending on format, e.g., picture-book shelving, picture file, filmstrip cabinet, magazine rack or tape cabinet.
USE OF LIBRARY MEDIA RESOURCES	Selection of media is based on personal interests. Selection of media is based on curricula needs. Picture books, easy books (fiction and non-fiction) are read for information. Filmstrips are viewed in order to obtain information.

LIBRARY MEDIA KINDERGARTEN

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
INTERPRETATION OF LIBRARY MEDIA RESOURCES	
Listening and Viewing Experiences	Listening and viewing experiences demonstrate the relationship of verbal to visual communications. Recordings are listened to in order to obtain information. Listening and viewing experiences provided through story telling, story reading and puppetry serve to: • stimulate imagination • develop vocabulary • provide pleasure • clarify concepts, e.g., the relationship of the volume of sound to emotional responses
Listening Critically	Listening to stories is enjoyable. Mother Goose rhymes, poetry, nursery tales, folk rhymes, and alphabet books have distinctive features. Story reading and story telling illustrate acceptable language patterns. Fluency in speaking is developed through sharing stories.
Viewing Critically	Reading picture books gives pleasure. Pictures fall into classifications: for instance, animals, buildings, occupations, etc. Picture books are used to identify objects and numerals. Picture books are used to clarify concepts, e.g., time, distance, and shape. Picture clues are used to understand meaning (constructing a story for a wordless picture book). Sequence of ideas is identified in printed, visual, and aural media. Significant happenings in the story are recalled in sequential order.

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
NUMBER NAMES AROUND US: READINESS FOR NUMBERS *pp. 4, 6, 8, 10	Number names in classroom, school, and neighborhood Number names from personal data: calendar, birthday, age, addresses, sets of digits, number names for measures Number names in stories and rhymes
ONE-TO-ONE CORRESPONDENCE BETWEEN SETS OF OBJECTS *pp. 14, 16, 18, 20, 22, 24, 26 28, 30	A set of objects for a set of children; e.g., two or three items of clothing; one head for one body Two-to-one correspondence, e.g., two eyes for one body Matching a set of two, three, or more objects with a set of related objects; e.g., buttons and buttonholes
PERCEIVING THE NUMBER IN A SET AND ITS SUBSETS WITHOUT COUNTING *pp. 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66	Concept of pair Number concept in sets of zero, one, two, three, and four objects Number of objects in a subset within sets of objects
PERCEIVING THE NUMBER IN A SET AND ITS SUBSETS: COUNTING, COMBINING, AND SEPARATING *pp. 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128	Counting and patterning two through six objects Doubles within an even number of objects, through a total of six objects Number names in sets of objects from 0 to 6 Number names of sets after adding one, two, three, or four objects Adding one object and taking away one object within sets of six objects

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
NUMBER LINE CONCEPT: EARLY LEVELS OF DEVELOPMENT *pp. 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172	Number ideas in a line of objects through 6 Number comparisons between two lines of objects
*pp. 174, 176, 178, 180 182	Concepts of length and weight Estimation of length and weight Measuring the length of an object by matching with a unit
GEOMETRIC CONCEPTS AND FRACTIONAL PARTS: EXPLORATION AND EXPERIMENTATION *pp. 192, 194, 196, 198	Estimating halves; comparing size of 2 heaps Dividing heaps of small objects into halves Dividing a single object into halves Dividing up to 6 objects into halves; number name in each half
*pp. 198, 200, 202	Estimating and comparing capacities of two cylindrical containers Measuring capacities Estimating and measuring capacities, such as, one-half full
*pp. 204, 206, 208, 210, 212	Some properties of rectangular, cylindrical and spherical objects
*pp. 214, 216, 218	Concept of circle Concept of time, and use of terms such as daytime, nighttime, on time, late, tomorrow, yesterday, today

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
MOVEMENT	
Reacting to Music through Body Movement	Body movement can express the high-low, slow-fast, and loud-soft musical concepts.
	March music, $\frac{2}{4}$, $\frac{4}{4}$, $\frac{6}{8}$ has a strong rhythmic pulse.
	Body movement can be expressed through walking, skipping, clapping, hopping and swaying.
RHYTHM	
* p. 5-12	Rhythm is present in the universe, in our body and in music.
The Steady Beat	Simple rhythm patterns are taught through repetition. 
	Basic rhythm patterns may be played on simple rhythm instruments, e.g., triangle, drum, tambourine.
SINGING	
*p. 13-14	Singing is a pleasurable experience.
Action and Song Stories	Songs encompass learning experiences, e.g., activity songs, action songs and song stories. Songs are presented through the rote approach.
LISTENING	
	Learning to listen is important.
Habits of Listening	Some listening habits include: attention; listening for rhythm and melody; listening for mood, dynamics; responding to music by clapping, tapping.

*TEACHING MUSIC Grades K-4 1978-1979 Curriculum Bulletin No. 5

PHYSICAL EDUCATION KINDERGARTEN

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
WHERE THE BODY MOVES	
Spatial Awareness	Following cues to begin and end movement Understanding personal and general space differences Moving safely in general and personal space
Direction Awareness	Understanding direction: up, down, forward, backward, sideward Moving in various directions
Level Awareness	Differentiating between high and low levels Performing at high and low levels in simple locomotor and non-locomotor activities Combining high and low levels with directional changes
Awareness of Pathways	Walking in a straight line, in a circle, a square, going forward, backward, sideward
THE BODY AND ITS PARTS	
Body Awareness	Identifying divisions of the body: front, back, upper, lower Locating parts of the body: head, shoulders, arms, feet, hips, hands, fingers Isolating body parts in movement: head, arms, legs, feet, hands, fingers
HOW THE BODY MOVES	
Time, Force, Flow	Differentiating between fast and slow, light and heavy Performing activities involving fast and slow, light and heavy

PHYSICAL EDUCATION KINDERGARTEN

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
WHAT THE BODY CAN DO	
Non-Locomotor Movements	Performing, stretching, bending, elevating, pushing, pulling movements
Locomotor Movements	Performing, hopping, jumping, galloping, walking, running movements
Manipulative Movements	Rolling, bouncing and catching a large ball Passing an object: beanbag, bowling pin, quoits (rings), board erasers
The Uses of the Parts	Communicating ideas and meaning through body movements: hand signals, shrugs, facial expressions Understanding that a body part can lead an action, e.g., head or feet first through a hoop Understanding that hands and feet can support the body--making a bridge with hands and feet
RHYTHMS AND DANCE	
Creative and Rhythmic Expression	Executing specific rhythmic responses: clapping, stamping, falling, galloping, hopping, jumping, leaping, marching to 4/4 and 2/4 time Responding to rhythms imaginatively and creatively, e.g., moving as dogs, bears, rabbits, frogs, ducks Conveying feelings through movement: sad, glad, frightened, ugly, pretty, big, strong, old, young Expressing ideas through movement, e.g., work of a carpenter, shoemaker, police officer, firefighter, parent, teacher Reacting to sounds and to simple directions on records

PHYSICAL EDUCATION KINDERGARTEN

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
RHYTHMS AND DANCE	
Dance	Executing tapping, walking, running, hopping, jumping and skipping (may be halting.) Combining several locomotor movements in a patterned sequence-- tiptoeing, walking and jumping Performing The Muffin Man, Here We Go Round the Mountain, Jim Along Josie, Bow Belinda

SCIENCE KINDERGARTEN

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
SPACES AND PLACES *pp: 28-31 Time: 2 weeks	
Spatial Relationships	We are nearer to some things than to others. Moving faster and taking giant steps get us to places faster. Things above you are higher. Things below you are lower. Up and down depends upon where you are.
WHAT'S ALIVE *pp: 32-37 Time: 3 weeks	
Characteristics of Living Things	There are many kinds of living things. Animals move, eat, breathe, grow, and protect themselves. Plants are living things.
DISCOVERING WITH OUR SENSES *pp: 38-43 Time: 2 weeks	
How Do We Use Our Senses?	We use our nose, fingers, ears, tongue, and eyes to find out about things.
DISCOVERING WITH A MAGNIFYING GLASS *pp: 44-47 Time: 3 weeks	
Using A Magnifying Glass	A magnifying glass makes things look bigger, helps us to see things more clearly, helps us to see things we did not see before, and helps us to see what is happening.

*Science: Grades K-2, Curriculum Bulletin No. 7, 65-66 Series.

SCIENCE KINDERGARTEN

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
UPHILL AND DOWNHILL *pp: 48-53 Time: 3 weeks	
The Characteristics of a Hill	A hill is higher at one end and lower at the other. Some are steeper than others. Going up a hill is harder than coming down.
Placing a Ball on a Hill	A ball can roll down a hill without a push. Some things roll or slide or do not move down a hill. A rolling ball will continue to roll after reaching the bottom and will stop on a level surface. The steeper the hill, the farther the ball rolls. A push is needed to roll a ball uphill.
SEEDS AND FRUITS *pp: 54-58 Time: 3 weeks	
Where Seeds Are Found	A fruit bears seeds of its own kind.
Varieties of Seeds	Seeds have many different sizes, shapes, colors, coverings, and arrangements. Seeds and fruits are parts of a plant.
Planting of Seeds	Seeds give rise to plants when they are watered.
HEAT CHANGES FOOD *pp: 59-62 Time: 3 weeks	
Various Foods are Changed by Heating	Applesauce, popcorn, toast, powdered gelatin, rice, spaghetti, etc., change when heated.

SCIENCE KINDERGARTEN

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
SOUNDS AROUND US *pp: 63-70 Time: 4 weeks	
Children Listen to Many Sounds	There are many different sounds wherever we are.
Loud and Soft Sounds	Some sounds are louder than others. We can control the volume of our voices and of objects around us.
High Sounds and Low Sounds	We can control the pitch of the sound.
LIGHT AND DARK *pp: 71-74 Time: 3 weeks	
How Can We Make Our Room Dark	Turning off the lights, pulling the shades, or having a cloud block the sun's light will darken a room.
Sources of Light	Light comes from the sun, moon, stars, electric light bulbs, and candles.
Formation of Shadows	Shadows can be made by stopping the light. The closer the object is to the screen, the darker the shadow. The shape of a shadow tells what is making it. A shadow moves with the object making it.
GETTING WET AND DRYING *pp: 75-79 Time: 3 weeks	
Characteristics of Wet Objects	When objects get wet they may change the way they look, feel, and smell.

SCIENCE KINDERGARTEN

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
Soaking Up Water With Paper	Water spreads in different ways on different papers. Waxed paper does not soak up water.
How Things Dry	Water goes into the towel we dry it with. Wet towels can be dried quickly by warming or fanning. Most wet things will dry when left in the open.
A MAGNET HOLDS ON *pp: 80-83 Time: 3 weeks	
What Can a Magnet Do?	Magnets pick up iron Magnets stick to iron. Many objects in the home contain magnets.
WATER MIXES WITH FOOD *pp: 84-89 Time: 3 weeks	
Changes In Foods When Mixed With Water	Lemonade, orange juice, and whole milk may be made from dried, concentrated, or powdered ingredients. Sugar dissolves in water and will dissolve more quickly by stirring or crushing it, or by shaking or heating the water. Sugar and lemon impart a sweet or sour taste to water. Dried fruits taste fresher when they are left in water.
AFTER IT FALLS *pp: 90-94 Time: 2 weeks	
What Happens When Things Fall To The Floor?	When things fall and hit the floor they may break, bounce, flatten, spread out, or pile up.

SCIENCE KINDERGARTEN

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
	The greater the height of the fall, the greater the change. Things that are similar will act the same way when they strike the floor.
SEESAWS AND BALANCES *pp: 95-99 Time: 2 weeks	
How Is A Seesaw Used To Balance Things?	Equal weights can balance each other on a seesaw. A light weight can balance a heavy one if the heavy one moves closer to the seesaw. A seesaw can be used as a scale.
BLOWING SOAP BUBBLES *pp: 100-105 Time: 1 week	
How Can We Make Soap Bubbles?	Bubbles can be made by blowing air into soapy water. They have different shapes and sizes. A soap bubble is soapy water and air.

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
HOW DO WE LIVE TOGETHER IN THE CLASSROOM? Techniques for sharing activities and materials are necessary for working independently and in small groups. These are developed cooperatively with teacher and class through the process of exploration.	
HOW DO WE LIVE TOGETHER IN THE SCHOOL ENVIRONMENT?	We travel in many ways to and from school. Many people are needed in the school to provide services. We have a responsibility for the proper use and care of the school and its facilities.
HOW DOES THE FAMILY MEET ITS NEEDS?	There are many kinds of families (nuclear, single parent, two parent, adoptive, foster, extended families, etc.) Family members have different roles within the family. All families need a home, food and clothing. All families need a source of income to buy what they need - sources of income vary in N.Y.C. Family members have different jobs and responsibilities that make them interdependent. There is a difference between needs and wants. Needs and wants differ from place to place. Families who come from other parts of the world contribute to N.Y.C.
HOW DO PEOPLE NEAR AND FAR HELP OUR CITY?	We depend upon people in our own country and in other countries near and far. We learn from people in other countries and they learn from us. Our country is made up of people who have come from other countries to live here. People from many lands have made contributions to our country.

SOCIAL STUDIES KINDERGARTEN

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
WEATHER AND SEASONS	Weather and seasons vary in different places and parts of the world. Weather and seasons change family needs. Weather and seasons vary the way people live and work. Weather and seasons vary the way in which we participate in various activities such as ice skating, swimming, etc.
HOW DO FAMILIES ADJUST TO CHANGE?	Families change in size, composition and move into different physical settings and life styles. Families live in neighborhoods, boroughs, countries, states, etc. Families move up, down and across the economic scale.
HOW DO WE OBSERVE SPECIAL DAYS IN SCHOOL AND AT HOME?	Flags of all countries have special meanings rooted in the past. We celebrate American holidays because they commemorate special days in our country's past and present. We celebrate special events and honor individuals and groups of people.
WORK STUDY SKILLS	Diagrams are cooperatively created for classroom, home, route to school. Dates and locations are related to personal experiences. Simple terms of location and direction are used: left, right, top, bottom.

Grade 1

MINIMUM TEACHING ESSENTIALS

Art 76

Health Education 81

Library Media 83

Mathematics 84

Music 87

Physical Education 80

Science 91

Social Studies 94

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
DRAWING	
*pp: 49-50 Time: 6-9 Weeks	
Lines, Shapes, Colors and Designs	Thick and thin crayons, pencils, brushes, and felt-tip pens are used with increasing control on a variety of surfaces. Manila paper 9"x12" is most frequently used. Other sizes and textures may be used.
Drawings Based on Real and Imaginary Worlds	Symbols, similar to those created in kindergarten, become more detailed and more easily recognizable. Sizes of figures begin to vary as they are lined up on a "base-line" at bottom of the paper.
Drawings Based on Stories, Songs and Poems	Teacher elicits answers to questions; children focus their thoughts for development as drawings.
PAINTING	
*pp: 31-32 Time: 6-9 Weeks	
Tempera Painting	One-inch brushes and 19"x22" newsprint are used. Narrower brushes are introduced when children feel need for smaller details.
Designs	Each color is allowed to dry before painting another color next to, or on top of it.
Simple Realistic Pictures	Symbols, similar to drawn symbols, are painted. The concept of the "base-line" is introduced by many into their paintings.
Watercolor Painting	Established routines are used for beginning and ending the painting experience.

*ART IN THE ELEMENTARY SCHOOLS, K-6: Board of Education, Curriculum Bulletin No.8
** ART TEACHING GUIDES, PUPPETS AND PUPPETRY: Board of Education, Curriculum Bulletin, No. 8h
*** DESIGN ACTIVITIES FOR THE CLASSROOM, John Lidstone, Davis Publications, Massachusetts, 1977

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
MURAL MAKING ***pp: 86-89 Time:4-6 Weeks Group Pictures	Drawing skills are practiced with chalk on the chalkboard. Working with others, group decisions are made.
Paper Mural with Cut or Torn Paper	Improved cutting, tearing, and pasting skills permit more complex compositions.
Paper Mural with Figures Cut Out from Drawings	The concept of overlapping figures being representative of forms near and far away is developed.
MODELING WITH CLAY *pp: 67-68 Time: 6-9 Weeks Clay Designs	As clay is manipulated by punching, piercing, rolling, and squeezing, motor control is increased. Pieces are joined by simply pressing them together after roughening surfaces to be joined.
Clay Figures and Animals	Some children are more skilled at communicating through modeling clay than through drawing. Clay modeling is an intuitive process that proceeds according to the child's natural stage of development.
Beads and Jewelry	Increased opportunity to experiment will promote the rate of growth.

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
BUILDING WITH BLOCKS *pp: 114-115 Time: 3-5 Weeks Linear and Vertical Arrangements	After experimenting with linear arrangements, progress is made toward vertical building. Experimental manipulation of the blocks leads to an understanding of the importance of balance. Ways are invented to enclose and bridge space. The ability to observe, to imagine, and to think grows with each new experiment in enriching the form of a structure.
ASSEMBLAGE OR CONSTRUCTION WITH WOOD AND FOUND OBJECTS pp: 123-125 Time: 4-6 Weeks Grouping and Gluing	Experiments are conducted with an assortment of wooden shapes and found objects. After grouping and regrouping pieces, they are glued together to create a permanent structure. Balance, design, open space, and art in the round are experienced. Constructions are associated with objects in the real world such as furniture, cars, bridges, and houses.
DESIGNING WITH PAPER *pp: 91-92 Time: 4-6 Weeks Two-Dimensional Design: Realistic or Non-realistic	Cutting, tearing, and pasting skills are practiced. Intuitive choices are made as shapes are arranged on a background.
Three-Dimensional Design	Cutting, tearing, rolling, folding, and twisting paper increases manual dexterity. Final arrangement on a background introduces new spatial concepts. One can look "at," "into," or "through" forms.

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
FABRIC AND FIBERS *pp: 95-96 Time: 4-6 Weeks Fabric Collage	Fabric is cut with sharp scissors. Fabrics and trimmings are used to create collages as colors and shapes are combined.
Stitchery	A running stitch is used to sew fabrics. The needle can go backwards through the fabric, "closing the gates." Colored materials can be combined.
Stuffed Shapes	A rough overcasting stitch allows for sewing around simple pre-cut shapes which can be stuffed. Large needles and yarns are used to sew on Dixie mesh, burlap, or other loosely woven fabric.
PUPPETS AND PUPPETRY *pp: 1-3 Time: 4-6 Weeks Stick Puppets	Figures are drawn on cardboard. Figures are cut out of cardboard and mounted on sticks. Puppet heads are made from paper bags, boxes, plastic containers, and styrofoam balls. Heads are adorned with a variety of materials; expressive features are created. Original ways are devised to make bodies, heads and limbs move. Puppetry stimulates verbal expression, story interpretation, and creative interaction among peers. Puppets can talk, tell jokes, and sing songs.

ART GRADE 1

CONTENT AREA AND TOPIC

PRINTMAKING

***pp: 52-70
Time:3-5 Weeks
Stamping

Monoprints

SKILLS AND KNOWLEDGE

The process of repeating a pattern is performed by stamping paper or cloth with inked objects such as sticks, cut erasers, pieces of wood, and pieces of potato.

Brush paintings or fingerpaintings are made on a non-absorbent surface such as formica or plexiglass.
A sheet of newsprint is placed on top of the wet painting, and carefully peeled off. This is a print of the original.
The print is a reverse of the original.

HEALTH EDUCATION GRADE 1

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
CLEANLINESS AND HEALTH PROTECTION *pp. 41-43	A person must practice good personal health habits in order to remain healthy and well. It is important to bathe frequently. It is important to keep hands, fingers, and objects away from one's nose, mouth, and face. Many times, a cold is the first sign of an illness. The family doctor helps boys and girls to keep healthy.
NUTRITION *pp. 46-48	There are many foods that help to keep the body healthy.
DENTAL HEALTH *pp. 49-50	The teeth are used every day and are important for everyday living.
EYES AND THEIR CARE *pp. 53-55	It is important to keep fingers and other objects away from the eyes. Seek the help of an adult if something gets into the eye. The eyes should be relaxed after close work.
EARS AND THEIR CARE *pp. 55-57	It is important to keep fingers and other objects away from the ears. Loud noises can be harmful to the eardrum.

147 * HEALTH EDUCATION IN ELEMENTARY SCHOOLS, Board of Education, Curriculum Bulletin N[illegible] 2 148

HEALTH EDUCATION GRADE 1

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
SAFETY AND FIRST AID *pp. 57-60	There would be fewer accidents on the street if children followed regulations that have been set up for safety. It is important to clean up areas after they have been used. It is dangerous to go near or touch electric switches and outlets with wet hands. Any wound should be cleansed thoroughly. Strange animals can be dangerous.
EXERCISE, REST, AND SLEEP *pp. 60-62	Sufficient sleep and rest are important for one's health.
MENTAL HEALTH *pp. 51-52 Also see FAMILY LIVING INCLUDING SEX EDUCATION	Parents, teachers, or other adults who are important in one's life should be consulted when help or advice is needed about personal problems.

LIBRARY MEDIA GRADE 1

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
ORIENTATION TO THE LIBRARY MEDIA CENTER	Review and mastery of previous skills. Each medium in the Library Media Center is identified, e.g., picture books, filmstrips, cassettes, records. The author is the creator of the text of the book. The title is the name assigned to the book. The illustrator produces the pictures which accompany the text.
ORGANIZATION OF THE LIBRARY MEDIA CENTER	Filmstrips, cassettes and records are found in a section of of the library arranged in a logical order.
USE OF LIBRARY MEDIA RESOURCES	Alphabetizing by the first letter helps in the location of picture books arranged by author. Recognition of P and E on spines, and F/S on cans, leads to the location of picture books, easy books and filmstrips. Browsing involves using illustrations to select materials. Books containing stories on family, pets, seasons, etc. are looked at independently.
INTERPRETATION OF LIBRARY MEDIA RESOURCES	Discussion, films, story reading, and storytelling: a) confirm experience, e.g., a story about making a new friend; b) expand experience, e.g., story of a child in another country; c) develop a sense of fantasy, e.g., story of the Gingerbread Boy. Use of books and audiovisual materials in the Library Media Center provides essential experiences for learning to read.

MATHEMATICS GRADE 1

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
SETS; NUMBER; NUMERATION *pp. 3-9, 12-14	Number names One-to-one correspondence; two-to-one correspondence; many-to-one correspondence Matching elements of two sets of objects using comparison terms such as: more, fewer, as many as, greater than, less than Number property of sets of objects Concepts of "before" "after" and "between" with respect to number Number comparisons Ordinal use of the numbers one through ten Counting objects by ones, by twos, by fives, by tens, to 50 Grouping objects by tens and by ones; beginning ideas of place value concept Ordering numbers through 50 Reading and writing numerals through 50
ADDITION OF WHOLE NUMBERS *pp. 7-14	Basic facts: sums 1 through 12 Addition with more than two addends, sums through 12 e.g., 5 1 +6
SUBTRACTION OF WHOLE NUMBERS *pp. 7-14	Basic facts: sums 1 through 12
FRACTIONAL NUMBERS *pp. 11-13	Estimating halves and fourths of a whole object; and of sets of things Estimating one-half of the capacity of a container Concept of halves and fourths of a single object

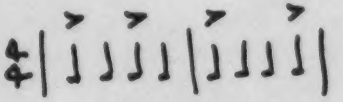
MATHEMATICS GRADE 1

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
GEOMETRY *pp. 5, 10, 13, 15	Position terms, e.g., inside, outside, on, center Recognition of solid figures: rectangular, cylindrical, spherical, triangular, as exemplified by real objects such as juice cans, shoe boxes, etc. Recognition of properties of plane figures: rectangles, squares, circles, triangles Concept of symmetry in paper folding
MEASUREMENT *pp. 3, 5-11, 15	Money: Recognition of coins and value relationships among pennies-nickels-dimes Time: Clock-concept of hour, half-hour; telling time by the hour, by the half-hour Calendar-names of days of the week; relationships; days-week; Terms such as today, tomorrow, yesterday, day before, day after Capacity: Non-standard units of capacity, e.g., jarful, glassful; Terms such as: full, almost full, empty, more, less Weight: Non-standard units of weight; terms such as: heavier, heaviest; lighter, lightest Temperature: Reading thermometer using non-numerical expressions such as: higher-lower, warmer-colder Linear: Non-standard units of length, terms such as: longer, longest; twice as long; one-half as long

MATHEMATICS GRADE 1

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
ALGEBRAIC CONCEPTS *pp. 6, 7, 9, 10	Symbols: +,-,=, placeholder Reading and writing number sentences Expressing word problems as number sentences Associating numbers with points on a number line
STATISTICS; GRAPHS; PROBLEM SOLVING; PROBABILITY *pp. 5, 10, 13	Tallying Collecting, sorting and organizing two sets of data by means of objects, pictures, cubes, discs, paper squares, etc. Discussing quantitative relationships relevant to the graphs; e.g., more children ride to school than walk to school Developing original number stories Dramatizing number stories Writing number sentences for pictured, dramatized, and original word problems Solving word problems involving addition and subtraction facts

MUSIC GRADE 1

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
MOVEMENT	Body movement is a form of musical interpretation.
Improvisation	Contemporary music by composers such as Prokofiev and Copland encourages a free style of interpretation and improvisation.
RHYTHM * p. 12	Rhythm is a fundamental element of music.
Creating Rhythms	Rhythm is used for communication. A steady beat with accents may be performed. 
	Echo clapping is an important technique in musical development.
SINGING * p. 22-24	Songs can tell us about people, animals and other things.
Repertoire Songs	Correct pitch and sustained quality are important to good singing.

*TEACHING MUSIC Grades K-4, 1978-1979. Curriculum Bulletin No. 5

PHYSICAL EDUCATION GRADE 1

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
WHERE THE BODY MOVES	
Spatial Awareness	Utilizing more general space. Reporting quickly to personal space--less bunching and clustering--moving independently Responding more quickly to cues Appreciating the use of larger areas for movement in running and skipping Beginning to appreciate proper use of personal space when handling small equipment Understanding outside, inside, through, around
Direction Awareness	Responding faster to directional terminology; changing direction on call: forward, backward, sideward Combining direction with slow locomotor and non-locomotor activities
Level Awareness	Differentiating among high, medium and low Improving response in changing levels Combining level changes with direction changes in locomotor and non-locomotor activities, e.g., walking forward like a puppy (close to the ground)
Awareness of Pathways	Difference between direct and indirect routes: short route, long route, round-about route Moving in specific geometric pathways: circle, square, line Combining directional changes in the use of pathways: backwards, forwards, sideways in a circle or line
THE BODY AND ITS PARTS	
Body Awareness	Distinguishing between upper and lower, front and back and side of the body

PHYSICAL EDUCATION GRADE 1

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
Body Awareness (cont.)	Understanding right and left side, right and left foot, hand, ear, knee, arm Associating specific body parts with major divisions of the body: head in upper, foot in lower, shoulder in upper Moving specific body parts in various directions: arms, (legs) up and down, back, forth and sideways: head side to side, up and down Understanding in front of, behind, underneath and to the side of the body Discriminating visually and auditorily--locating objects, identifying colors, voices, sounds, evidenced by moving a part of the body
HOW THE BODY MOVES	
Time, Force, Flow	Recognizing acceleration and deceleration Improving application of acceleration and deceleration in locomotor and non-locomotor actions Understanding quantitative aspects of time in movement--the greater the distance, the longer the time
WHAT THE BODY CAN DO	
Non-Locomotor Movements	Improving stretch, bend, elevate, push, pull, sway, swing, curl, turn
Locomotor Movements	Skipping with greater ease, rolling sideways and forward
Manipulative Movements	Improving rolling, bouncing, catching large balls

PHYSICAL EDUCATION GRADE 1

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
WHAT THE BODY CAN DO	
Manipulative Movements (cont.)	More skillfully manipulating various pieces of small equipment --fleece balls, quoits, beanbags Beginning rope-jumping
The Uses of the Parts	Improving communication of ideas and feelings through movement Understanding body language more easily Leading an action with two body parts: frog jump and rabbit hop Parts meeting and separating, e.g., jump, feet apart and together Beginning to develop symmetry in movement--swinging arms together, up and down, or in same direction Executing stunts: log roll, tight rope walk
RHYTHMS AND DANCE	
Creative and Rhythmic Expression	Improving rhythmic locomotor response--skipping, hopping, jumping, galloping, running to music or percussive instrument Using body parts more imaginatively and creatively
Dance	Executing specific dance patterns: forward and back, swing, skip, draw step, promenade, twos and threes Performing Children's Polka, Shoemaker's Dance, Shoo Fly, Chimes of Dunkirk

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
WEATHER FROM DAY TO DAY *pp: 107-119 Time: 10 weeks	
A Sunny Day	The sun heats and lights the earth. The sun helps to dry wet objects. Shade is formed when sunlight is blocked. We read the thermometer to find out about the temperature of the air.
A Windy Day	Wind is moving air. Wind pushes and carries things. Wind can do damage. Wind makes waves. Wind helps dry things.
Cloudy and Foggy Days	Clouds differ in size and shape and position in the sky. A cloud is made of tiny drops of water, or crystals of ice. Clouds are moved by wind. Fog is a low cloud and makes things feel moist and difficult to see.
A Rainy Day	Rain is water that comes from the clouds. Rain soaks into some things but not into others. Some rainwater goes back into the air.
A Cold Day	Water may freeze and form ice. The thermometer goes down. Heat keeps us warm. Salt melts ice.
A Snowy Day	Snowflakes have different shapes. Snow may become ice and melts to water. We use safety precautions in the snow.

SCIENCE GRADE 1

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
ANIMALS AND PLANTS IN OUR NEIGHBORHOOD *pp: 134-148 Time: 9 weeks	
Animals in Different Environments	Animals need air, food, water, and shelter. Animals protect themselves in many ways.
Plants In Different Environments	Plants have roots, stems, leaves, flowers, and seeds. Plants change with the seasons.
SOUNDS AROUND US *pp: 149-155 Time: 9 weeks	
Cause of Sound	When sounds are made, some things have to vibrate.
Different Kinds of Sound	Different kinds of objects vibrate to make different sounds.
MOVING ON LAND AND WATER *pp: 156-169 Time: 12 weeks	
Methods of Movement	Objects on wheels move more easily. Pushing or pulling, wind-up springs, motors, and slides cause objects to move more easily.
Stopping a Moving Object	When a car comes to a sudden stop, the passengers move in a direction opposite to the direction of the stop. Straps, poles, or safety belts are used for protection. Bicycles should be stopped slowly.
Turning Corners	It is easier and safer to move around a corner slowly than rapidly. When a car turns a corner fast, passengers are tilted to the side. A bicycle should slow down on turns.
Safety	Traffic controls are needed.
Floating and Sinking	In water, some things will float, some will sink. Of two objects the same size and shape, the lighter one will probably float.

SCIENCE GRADE 1

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
Building Rafts	Rafts may be made by tying together objects which float. Things filled with air make good rafts.
Tipping Over In Water	Sailboats are steadier when the mast is lower. They have keels to help balance the hull. Loads must be placed at the center of the boat.
An Indoor Boat Show	A boat can be pushed or pulled. Boats are moved by wind, electric motors, springs, rubber bands, or water currents.
Staying Afloat	A material filled with air or lighter than water will keep an object afloat.
Pushing an Inflated Balloon Under Water	Objects in water are pushed up by the water.
Sinking a Boat	If enough weight is put into a boat, it sinks.

SOCIAL STUDIES GRADE 1

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
Review and reinforce kindergarten learnings to meet individual and class needs, stressing family as a unit.	
PEOPLE LIVE IN GROUPS - FAMILIES, SCHOOL, PLAY AND WORK GROUPS	Families vary in size Families change Families around the world are alike and different
Communities Have Similar Facilities to Meet the Needs of People Living in Them	Various facilities serve families in a community, neighborhood - grocery stores, department stores. Various facilities help people communicate with people in other communities. Various community facilities help people - police, fire, hospital.
HOW DO WORKERS SUPPLY MANY NEEDS?	
Families Depend on Work of Many People to Supply Their Needs, Wants, and Services	Some people provide products, some perform services.
Kinds of Work Depend on Many Factors	Types of work depend upon climate, location, seasons, education.
Dividing the Work Gets It Done Better	People need different skills for different jobs.
HOW DOES GOVERNMENT SUPPLY SERVICES TO MEET PEOPLES' NEEDS?	
People Need Government to Supply Services	Government is a way of organizing people. The organization of families is like a government in many ways. Governments are formed to satisfy needs, provide services and for protection.
People Need Services to Keep Them Healthy and Safe	Government provides services such as health, protection, education, and recreation.

SOCIAL STUDIES GRADE 1

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
People Pay Money to the Government to Pay for These Services	People pay money in the form of taxes to pay for these needs and services.
People Have a Responsibility to Use These Services Wisely and with Care	People can change the laws and the government officials. All individuals have responsibilities to their family, community, and country.
HOW ARE COMMUNITIES INTERDEPENDENT? (Case Study of Food)	
Foods We Eat Are Produced in Places Near and Far	Weather, climate, seasons affect food production. Some foods must be processed to prevent spoiling.
Many Forms of Transportation Bring Food to N.Y.C.	There are many different kinds of vehicles bringing food to the city: trains, planes, trucks, ships.
We Buy Our Food in Stores	There are many different kinds of stores and ways to purchase food: supermarket , outdoor market. The geography of a community affects the type of goods or services it produces and needs.
HOW DO CHANGES OCCUR IN THE COMMUNITY?	
How Our Community Started Long Ago	Native Americans were the earliest families. Dutch and English were the first settlers. The first settlers had to adapt to the land as they found it. Various religious and national groups lived in N.Y.C. during the early settlements.
Our Community Grew and Changed	Some families move into communities, others move out. People who live in communities come from other parts of the U.S.A. and the world.

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
HOW DO COMMUNITIES OBSERVE SPECIAL DAYS?	
Special Days Relating to Family and Community Events	Some special days relate to seasons; e.g., Arbor Day, Thanksgiving. Some special days relate to the family: birthdays, homecomings. Some special days relate to groups in the community: Puerto Rican Discovery Day, Jewish Heritage Week, Black History Week. Some special days celebrate national holidays.
Special Days Relating to the Customs of Various Groups of People	Chinese New Year, 3 Kings Day and Channukah are holidays celebrated by many people in our city.
Symbols of Our Country and Their Meanings	Our flag, the salute, patriotic songs and historical landmarks are a heritage we all share. Practices in democratic living in our class, school, community, city, state affect our daily lives.
Special Days Relating to International Events	Recognition is given to special days, events, and people around the world.
CURRENT AFFAIRS	Current affairs are studied to see the effect on children's lives, and to assist in developing civic responsibility.
WORK STUDY SKILLS	Title page and table of contents are used to find information. Books, newspapers, magazines are used as sources of information in class and school library. Skills of interviewing are begun. Titles are chosen for pictures and bulletin boards. Calendars are made and used to refer to each day's date, and special days. Direction names (north, east, south, west) are used by teacher in relation to classroom location, trips in neighborhood.

Grade 2

MINIMUM TEACHING ESSENTIALS

Art 98

Health Education 103

Library Media 105

Mathematics 106

Music 109

Physical Education 111

Science 114

Social Studies 118

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
DRAWING *pp: 49-50 Time: 6-9 Weeks	Thick and thin crayons, pencils, felt-tip pens, and chalk are used to draw. Paper of various sizes, shapes, and textures is used.
Drawings Based on Children's Experiences	Symbols for people, animals, buildings, cars, trees, flowers, and other objects are created. Drawings acquire more details such as hair, shoes, windows, curtains, wheels, leaves and petals.
Drawings Based on Fantasy	Fantasy creatures become very popular as subject matter.
Drawings Based on Stories, Poems and Songs	Skillful questioning is necessary to activate drawing by second graders. Base line still appears in many pictures. Greater control of coloring is demonstrated. Drawings show an increased awareness of details describing people, places and things.

*ART IN THE ELEMENTARY SCHOOLS, GRADES K-6: Board of Education Curriculum Bulletin No. 8
**DESIGN ACTIVITIES FOR THE CLASSROOM, John Lidstone, Davis Publications, Massachusetts, 1977
***ART TEACHING GUIDES, PUPPETS AND PUPPETRY: Board of Education Curriculum Bulletin, No. 8h

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
PAINTING *pp: 31-36 Time:6-9 Weeks Tempera	One-inch, $\frac{1}{4}$-inch hard bristle brushes and large, round, soft hair brushes are used on 19"x22" newsprint. Materials are used with greater self-reliance. The ability to handle a number of colors is gradually increased.
Design Paintings: Experimenting with Color, Pattern, and Texture	More varied shapes are used. Color is put down next to color. Patterns and textures are created by painting one color over another color after the first color has dried.
Paintings with Story Content	Paintings of people, animals, trucks, cars, flowers, trees, and buildings reflect the level of drawing ability.
Watercolor Painting	Previous experience provides skills and understandings to build upon with confidence.
MODELING WITH CLAY *pp: 67-68 Time:4-6 Weeks Standing Shapes and Using Slip	More proficiency is shown in modeling clay into standing shapes. Pieces of clay are added more permanently by "welding" them with slip. An awareness of the brittle quality of very thin extensions of clay is developed.
Surfaces and Textures	Fingers are used to create smooth surfaces. Tools are used to achieve different surface textures.

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
DESIGNING WITH PAPER *pp: 91-92 Time: 2-4 Weeks Design	
Totem Poles and Creatures	Varieties of shapes are cut and torn from paper of differing colors, textures, and weights. Choices are made from among many colored materials. Paper is folded, curled, and twisted into many shapes. Methods are devised to attach new shapes to free standing paper or cardboard forms, such as columns or boxes. Free standing, three-dimensional designs are thus created.
LETTERING *pp: 77-78 Time: 3-5 Weeks The Brush Stroke	Lined newsprint, ½-inch bristle brushes, and tempera paint are used. The letters of the alphabet are analyzed and divided into groups according to the kinds of lines that form them. The following brush strokes are practiced: I-V () O The brush is held in the same plane as the line of the stroke so that all lines are evenly thick. Starting with vertical and horizontal letters, all the letters are practiced. Children practice lettering their names and simple sentences.

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
PRINTMAKING **pp: 54-69 Time:3-5 Weeks Rubbing	An alternative use of the crayon is mastered as the flat side of the crayon is rubbed over paper under which a leaf, a cut-out shape or a textured surface has been placed. This process produces one or multiple images. Rubbing increases awareness of texture and textural variations.
Stamping: Vegetable and Cardboard Printing	Skill is acquired in the process of repeating a pattern as a variety of inked natural objects is used to create designs. A second color can be used to overprint the first color after it has dried.
PUPPETS AND PUPPETRY ***pp: 1-3 Time: 3-5 Weeks Stick Puppets, Finger Puppets, and Hand Puppets	Plastic spoons, styrofoam balls, paper cups, cardboard cylinders, and small boxes are used as the core for puppet heads or the base for puppet creatures. Fabric is glued or attached with rubber bands to create expressive features. Features include different hair styles,eyes, antennae, tusks, and other protruberances. Puppets are manipulated against simple backgrounds in coordination with simple dialogue. Jokes are told;songs are sung;conversations are improvised. Puppets act as a release for verbal expression by shy children and as a medium through which children "act out" behavior.

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
CONSTRUCTING WITH WOOD AND OTHER MATERIALS *pp: 123-125 Time: 4-6 Weeks Objects from the Real World, Imaginary World, and Non-objective Structures	Preplanning is part of the process of selecting wood pieces and other materials to create constructions. Pieces of wood and other materials are compared in size in order to balance constructions. Color can be added to constructions with tempera paint. No more than one or two colors should be applied to main body of the construction. Touches of other colors may be used for trim or decoration.

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
CLEANLINESS AND HEALTH PROTECTION *pp. 63-65	Germs are found everywhere; they are so tiny that they cannot be seen without a microscope. Some germs can be harmful if they enter the body. Sick people should rest quietly and comfortably, and have the benefit of medical advice. Sometimes it is necessary to go to a hospital for special treatment. People should have medical examinations on a regular basis. Immunizations prevent certain diseases by defending the body from harmful germs.
NUTRITION *pp. 69-70	Food is important for growth, repair of tissues, energy, and heat.
DENTAL HEALTH *pp. 70-73	Children should visit the dentist for regular checkups. Brushing and flossing help clean the teeth. A nutritious diet helps teeth to remain strong and healthy. Sweets and soft drinks may be harmful to the health of the teeth.
MENTAL HEALTH *pp. 74-77	Work, exercise, and play make a person feel better. Sufficient rest and sleep make a person feel better.
EYES AND THEIR CARE *pp. 77-79	The eyes help us see the world around us. The eyes are delicate organs and need proper care.

* HEALTH EDUCATION IN ELEMENTARY SCHOOLS Board of Education Curriculum Bulletin No. 2

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
EARS AND THEIR CARE *pp. 80-82	The sense of hearing is important to one's safety, health, and ability to learn. Children whose ears bother them should report this condition to their parents or teacher. An ear specialist will give treatment and help if it is necessary.
SAFETY AND FIRST AID *pp. 82-87	School safety should be practiced regularly in classrooms, halls, and playgrounds. Safety rules should be followed when engaging in water sports. Certain objects in the home, e.g., matches and electrical appliances, require special care to insure one's safety. There are proper procedures for taking care of minor cuts and bruises.
EXERCISE, REST, AND SLEEP *pp. 87-90	Daily exercises such as rhythms, games, and dance are important for one's health. Rest and sleep are necessary for body growth and development.

LIBRARY MEDIA GRADE 2

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
ORIENTATION TO THE LIBRARY MEDIA CENTER	Review and mastery of previous skills. Publisher of a book is the person or company responsible for the book's being produced and made available to the public. The terms spine, jacket, narrator have particular meanings when used in the Library Media Center.
ORGANIZATION OF THE LIBRARY MEDIA CENTER	Stories are recorded in books, on cassettes, record discs, films, and filmstrips.
USE OF LIBRARY MEDIA RESOURCES	Records and tapes are located by titles found on jackets and cans. Books are located by the authors found on the spines and the author and title found on the title page. In the same issue of a magazine, a variety of kinds of information and styles of writing may be found. Magazines may contain different types of illustrations.
INTERPRETATION OF LIBRARY MEDIA RESOURCES	Main idea is identified from material in a number of formats: a) book b) filmstrip c) recording, tape and disc. Traditional and modern children's literature and artistic films are used to explore appropriate concepts and values. Oral reports are a means of sharing reading, listening and viewing experiences. The excellence of Caldecott Medal winners can be demonstrated by examining their illustrations and texts.

MATHEMATICS GRADE 2

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
NUMBER: NUMERATION *pp. 6, 10, 17, 28, 52, 82, 104, 122, 131, 133	Number concepts of sets of objects Ordering whole numbers Ordinal use of numbers Place value concepts - through 100 Estimating quantities Comparing and ordering numbers Counting by twos, threes, fours, fives, tens Rounding numbers to the nearest ten Reading and writing two-digit numerals in expanded form
ADDITION OF WHOLE NUMBERS *pp. 40, 54, 63, 89, 94, 96, 135	Basic facts: sums through 18 Addition with more than two addends, sums through 18 7 3 +1 Algorithm for computing sums of two addends, no exchange, sums less than 100 36 +21 Algorithm for computing sums of tens and multiples of ten 30 +20 $30 + 20 = \square$ Algorithm for computing sums of more than two addends, no exchange 23 14 +31

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
SUBTRACTION OF WHOLE NUMBERS *pp. 43, 58, 67, 79, 89, 98, 100	Basic facts: sums through 18 Concept of inverse operations, e.g., 6+2=8 so 8-2=6 Algorithm for computing differences, no exchange $\begin{array}{r} 36 \\ -15 \\ \hline \end{array}$ Subtracting ten and multiples of ten from numbers through 99 20-10=□
MULTIPLICATION OF WHOLE NUMBERS *pp. 107, 123, 144, 157	Concept of multiplication as repeated addition Basic facts: twos through 5 twos, threes through 5 threes, fours through 5 fours, fives through 5 fives
DIVISION OF WHOLE NUMBERS *pp. 110, 125, 146, 161	Concept of division Basic facts: twos through the number of twos in 10, threes through the number of threes in 15, fours through the number of fours in 20, fives through the number of fives in 25
FRACTIONAL NUMBERS *pp. 71	Concept of one-half of a whole Symbol for one-half, $\frac{1}{2}$ Concept of thirds of a whole

MATHEMATICS GRADE 2

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
MEASUREMENT *pp. 33, 47, 102, 114, 154, 167, 170-173	Linear: Estimating lengths Non-standard units of length Standard units of length - meter, foot Money: Value relationships among penny-nickel-dime-quarter Time: Calendar-relationship between months-years; days-weeks Clock - concepts of hour and half hour; telling time to the hour and half-hour Temperature: Concept of temperature as a measure of heat Reading thermometers using non-numerical expressions e.g., higher-warmer; lower-cooler Capacity: Non-standard units of capacity Standard units of capacity - liter, quart Quantity: Concepts of dozen and half-dozen Weight: Non-standard units of weight Standard units of weight - kilogram, pound
GEOMETRY *pp. 61, 120	Some characteristics of the geometric shapes: rectangle, square, triangle, circle Concept of symmetry
GRAPHS; PROBLEM SOLVING; PROBABILITY *pp. 35, 49, 50, 69, 142	Translating word problems into mathematical sentences Procedures for analyzing and solving word problems Collecting, organizing, and discussing data

MUSIC GRADE 2

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
RHYTHM	Rhythm plays an essential role in the development of music.
Reading Rhythms, Accents and Rests	Reading musical notation of common rhythmic patterns reinforces musical learnings. Composing rhythm patterns is an important step in musical composition.
SINGING * p. 17-20	Musical concepts are realized through singing, e.g., high-low pitch; loud-soft dynamics.
Musical Concepts	Song material is used to bring about an awareness of in-time singing (pitch matching and sustained quality).
LISTENING * p. 25-30	Listening is a readily available vehicle through which children discover meter, mood, pitch and dynamic differences.
The Concert Hall	Attendance at live musical performances, in school and out of school, add an important aspect to the listening experience. (Young Audience performances)
LISTENING * p. 77-80	Environmental sounds are part of music (the sound of motors, trains, horses, thunder).
Identifying Musical Instruments	An orchestra is made up of many musical instruments (strings, woodwinds, percussion, brass).
INSTRUMENTAL MUSIC * p. 33-39	Musical instruments are an extension of our ability to create music.
Simple Rhythm Instruments	Musical instruments can create environmental sounds, e.g., thunder can be produced on a bass drum. Musical instruments can be used to play along with songs (accompanying songs).

*TEACHING MUSIC Grades K-4
1978-1979 Curriculum Bulletin No. 5

MUSIC GRADE 2

CONTENT AREA AND TOPIC	SKILL AND KNOWLEDGE
INSTRUMENTAL * p. 33-36	"Non-pitched" instruments such as the drums, cymbals, triangle and rhythm stocks can be orchestrated to accompany songs and recordings.
Pitched and Non-Pitched Instruments	Simple melodies can be played on "pitched" musical instruments, such as the xylophone, metalophone, melody bells. Both "pitched" and "non-pitched" instruments can be combined in one orchestration. (Twinkle, Twinkle Little Star)

PHYSICAL EDUCATION GRADE 2

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
WHERE THE BODY MOVES	
Spatial Awareness	Using general space freely Choosing personal space easily Knowing inside, outside, around, through, over, under, in front of, at side of, in back of
Direction Awareness	Combining direction with locomotor and manipulative skills
Level Awareness	Combining level changes with manipulative skills using balls, hoops, beanbags Differentiating between lower than and higher than--throw ball higher than head and catch it; bounce ball lower than knee and catch it
Pathways Awareness	Traveling along a variety of routes--circle, square, triangle, rectangle, curved, and straight lines Varying pathways while bouncing balls
THE BODY AND ITS PARTS	
Body Awareness	Knowing right foot, left foot, right hand, left hand, chin, ear, brow, forehead, eyelids, shins, ankles, calves, thighs Improving visual and auditory discrimination evidenced by moving body parts in response to written, drawn and verbal symbols; loud and soft, high and low sounds; vocabulary: freeze, stop, go, hop, run; geometric figures: square, circle, triangle, line

PHYSICAL EDUCATION GRADE 2

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
HOW THE BODY MOVES	
Time, Force, Flow	Applying force intentionally to improve jumping, hopping, throwing and bouncing Using force and flow intentionally to refine performance: changing pace and direction in locomotor activities; bouncing a ball higher and lower in manipulative activities; swinging arms slowly and quickly in non-locomotor activities
WHAT THE BODY CAN DO	
Non-Locomotor Movements	Improving stretching, bending, elevating, pushing, pulling, curling, swinging, swaying, twisting Becoming aware of possible variations in movment of specific body sections: bending upper part down and sideways; circling arm and leg; raising the lower part while lying down Developing effective non-locomotor movements in manipulative activities, e.g., raising the lower arms while moving in circle
Locomotor Movements	Combining locomotor and non-locomotor movements fluidly, e.g., catching while running, leaping Running carrying a ball or small piece of equipment
Manipulative Movements	Improving bouncing, catching, kicking, punching, striking, and rolling large balls Combining manipulative and locomotor movements Applying manipulative ability in simple games Jumping rope with rope turning forward, backward; travel while jumping

PHYSICAL EDUCATION GRADE 2

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
WHAT THE BODY CAN DO	
The Uses of the Parts	Expressing ideas with dramatic intent Meeting and separating body parts in executing jumping jacks Moving body parts symmetrically; arms raised over head, arms raised forward, to side and back Moving body parts asymmetrically: One foot forward and one back, and change; one arm up, other down, and change Improving balance, both static (motionless) and dynamic (in motion) Using specific divisions of the body to initiate action in activities such as forward roll and log roll Executing stunts using various parts: reaching for the moon, jumping frame, roly poly, tall trees growing
RHYTHMS AND DANCE	
Creative and Rhythmic Expression	Expressing emotions through movements Executing rhythmic and creative expressions freely and imaginatively Knowing difference between even and uneven rhythms in locomotor movements--gallop, slide and skip as uneven rhythms; hop, jump, walk, run as even rhythms Creating original movements to recorded music, percussive instruments, and other accompaniment
Dance	Performing walk, skip, gallop, hop, slide, tap and stamp in various directions to musical accompaniment Executing dance patterns: forward and back, promenade, honor partner and corner, swing partner, circle four and eight hands around, hook swing Performing: Circassian Circle, O Susanna, Danish Dance of Greeting, Hopp Mor Annika (Skip Annika)

SCIENCE GRADE 2

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
ANIMALS AND PLANTS IN THE CLASSROOM *pp: 171-186 Time: 8 weeks	
ANIMALS	
Animal Pets	There are many kinds of pets.
Needs of Pets	Animals need air, food, water, and shelter. Some care for themselves; others need help.
Movement of Animals	Animals swim, hop, crawl, run, or fly.
Reproduction	Animals look like their parents. Some living things undergo many changes before they look like others of their species.
Survival	Animals protect themselves in many ways.
PLANTS	
Needs of Plants	Plants need water, soil, light, the proper temperature, and space in which to grow.
Plant Parts	Common plants have leaves, stems, roots, and sometimes flowers.
Structure of a Seed	A seed contains a baby plant.
Growing Plants	Some plants can be grown from parts of a plant.

*SCIENCE - GRADE K-2 #7 - 1965-66 Series

SCIENCE GRADE 2

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
SUNLIGHT AND SHADOWS *pp: 187-195 Time: 8 weeks	
Sun in the Sky	The sun is the chief source of light. The sun is very far away. The sun is always in the sky and appears in different places at different times. When the sun sets, the sky darkens and night begins.
Shadows in the Sunlight	When something comes between the sun and the earth, it makes a shadow. The length and direction of a shadow depend upon the position of the sun. Shadows help to tell time.
MAGNETS *pp: 196-210 Time: 7 weeks	
Using Magnets	There are many different kinds of magnets. Magnets will pick up objects made of iron.
Strength of Magnets	Some parts of a magnet are stronger than others. A magnet is strongest at its end. Magnets can attract through some substances.
How Magnets Affect Other Magnets	When 2 magnets are brought near each other, they pull together or push apart. A magnet can push or pull another magnet without touching it.

SCIENCE GRADE 2

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
WATER, SOIL, ROCKS, AND AIR *pp: 211-235 Time: 10 weeks	
Water Around Us	Water takes the shape of its container.
Mixing Substances With Water	When different substances are mixed with water they may dissolve, sink, or float. Stirring makes some things dissolve faster in water. Some substances color water.
Soil Around Us	Soil is found in many places. Water and wind can carry soil away. Moist soil holds together better than dry soil. Different kinds of soils have different colors. Soil has living and non-living objects in it.
Rocks Around Us	There are many kinds of rocks. Rocks are different in size, smoothness, hardness, and luster. They can be classified according to these properties.
Sand	Sand is made of tiny pieces of rock.
The Air Around Us	Air is all around us and in water and soil. Air occupies space and has weight Air takes the shape of its container.

SCIENCE GRADE 2

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
MOVING IN THE AIR *pp: 236-243 Time: 7 weeks	
Flying Along	Wind is moving air. Wind carries many things. Some things fly high; some fly low. A parachute slows the fall of an object that hangs from it. Engines can move something through the air. Rockets and jets move in the opposite direction from that of the escaping gases.

SOCIAL STUDIES GRADE 2

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
Review and reinforce first grade learnings to meet individual and class needs.	
HOW DO PEOPLE LIVE AND WORK IN AND AROUND N.Y.C.?	There are many reasons why so many people live and work in N.Y.C. N.Y.C. consists of neighborhoods, communities, and boroughs. Suburbs are areas outside of the five boroughs. N.Y.C. is part of the greater metropolitan area, which includes parts of N.J. and Conn. N.Y.C. has many places of public interest. New Yorkers are governed by laws and elected leaders. Case Study Outline: City Services Identification Location in N.Y.C. World Origins - Geography Historical Background Family Life Securing Basic Family Needs Culture Religion Education Arts Language and Literature
WHO ARE THE PEOPLE WITHIN N.Y.C.?	A case study (studies) of various ethnic groups (Include those representative of school community.)
HOW DO PEOPLE LIVE AND WORK IN AND AROUND ANOTHER LARGE CITY IN THE U.S.?	A case study of another city, e.g., Philadelphia, comparing similarities with and differences from New York.

GRADE 2: HOW PEOPLE LIVE IN CITY COMMUNITIES AROUND THE WORLD (Reference for Adaptation)

SOCIAL STUDIES GRADE 2

CONTENT AREA AND TOPIC	SKILLS AND KNOWLEDGE
HOW ARE PEOPLE BROUGHT CLOSER TOGETHER THROUGH GROUP COMMUNICATION?	People communicate by oral language, sign and written language. Some special ways of communicating are the calendar, clock, thermometer, ruler. Inventions that improve and speed communications are telephone, telegraph, television, radio, magazine, newspaper. N.Y.C. is a great center of communication.
HOW ARE PEOPLE BROUGHT CLOSER TOGETHER THROUGH TRANSPORTATION?	People need transportation to forward and transport goods. Science has invented ways to help us travel and send goods further, faster and more cheaply than before. Transportation has helped to make New York a great city.
HOW DO PEOPLE OBSERVE SPECIAL DAYS AND CUSTOMS?	People in the U.S. celebrate national holidays such as: July 4, birthdays of George Washington and Abraham Lincoln. People in other countries also celebrate national holidays such as Bastille Day.
CURRENT AFFAIRS	Current affairs are studied to see how they affect children's lives and to assist in developing civic responsibility.
WORK STUDY SKILLS	Experience charts and outlines are developed together. Reports are made on topics; using various sources of information: books, newspapers, magazines, television, filmstrips. People are interviewed for information. Fact and opinion are differentiated. Technical terms are added to vocabulary.

CREDITS *

ART

DEVELOPERS AND WRITERS OF ORIGINAL MATERIALS

Grace George Alexander-Greene, Head of Art Unit
Jack Rosenbaum, Assistant to Head of Art Unit

WRITERS AND/OR DEVELOPERS OF REVISIONS

Cecille Davis, Supervisor of Art, C.S.D. #6
Ruth Danis, Teacher, P.S. 166Q

REVIEWERS AND ADVISORS FOR REVISIONS

Grace George Alexander-Greene, Head of Art Unit
Shirley Hochman, Supervisor of Art

BILINGUAL EDUCATION, AND ENGLISH-AS-A-SECOND LANGUAGE

DEVELOPERS AND WRITERS OF ORIGINAL MATERIALS

Hernan LaFontaine, Executive Administrator, Center for Bilingual Education
Marco A. Hernandez, Deputy Executive Administrator, Center for Bilingual Education
David Krulik, Assistant Director, Center for Bilingual Education
Lily C. Din, Teacher-Trainer
Bernice Forman, Teacher-Trainer
Ron LeDonni, Teacher-Trainer
Marvin J. Pekkala, Teacher-Trainer
Eli Plotkin, Teacher-Trainer
Burt Posner, Teacher-Trainer
Richard Quintanilla, Teacher-Trainer

REVIEWERS AND ADVISORS

Angela Baxley, Bilingual Project Director
Antonia Carranza, ESL/Bil. Coordinator, District 17
Barbara Gerard, Bilingual Project Director
Eleanor Jakubovitz, Bil. Coordinator, District 18
Jane London, Title VII Co-Coordinator, District 22

CAREER EDUCATION

DEVELOPER AND WRITER OF ORIGINAL MATERIALS

Dr. David A. Bickimer
Project Director,
Career Education Unit (1977)

REVIEWERS AND ADVISORS FOR REVISIONS

Juanita O. Ward
Project Director,
Career Education Unit
George R. Quarles
Chief Administrator,
Center for Career and Occupational Ed.

WRITER AND/OR DEVELOPER OF REVISIONS

Michael T. Quinn
Coordinator,
Career Education Unit

CHILD DEVELOPMENT FOCUS

DEVELOPERS AND WRITERS OF ORIGINAL MATERIALS

Hortense P. Jones, Director, Center for School Development
Thomas Cousins, Coordinator, Consumer Education Project
Adele Davidson, Early Childhood Supervisor
Elvina Goldfield, Assistant Coordinator, Follow Through Program
Carol Fineberg, Coordinator, Arts in General Education
Evelyn Jones, Facilitator, The Mini-Grant Program
Lois Knox, Educational Administrator, Follow Through Program
Marjorie McAllister, Coordinator, Follow Through Program
Sol Meldon, Coordinator, Gifted and Talented Program
Lilia Zarate, Psychologist, Follow Through Program

REVIEWERS AND ADVISORS

Teachers of Early Childhood classes in Community School Districts and the following Early Childhood Liaison persons:

Beatrice Brennan	District 1
Sandra Caruso	District 2
Norma O. Nurse	District 3
Norma Mingo	District 4
Eleanor Everett	District 5
Michele Jones	District 6
Carol B. Sanders	District 11
Inez Venable	District 12
Myra Briggs	District 13
Mary Driscoll	District 14
Josephine Ierelli	District 15
Edna Greenspan	District 16
Miriam Skolnick	District 17
Merle Hairston	District 18
Anita Harrison	District 19
Miriam Revkin	District 20
Ruth Abramowitz	District 22
Julia Washington	District 23
Virginia Lee	District 25
Barbara Pitts	District 27
Loretta McKillop	District 28
Barbara Slatin	District 29
Saria Zuckerman	District 31
Lorraine Feinman	District 32

COMMUNICATION ARTS

The Communication Arts section was developed jointly by the English Language Arts Unit and the Center for Reading.

*Titles and affiliations were those in force at the time the materials were prepared.

CREDITS

DEVELOPERS AND WRITERS

Anita Wilkes Dore, Director of English
Marian Traina Power, Director (Acting) Center for Reading

James Anello, Principal - P.S. 188 K - District 21
Elva Collazo, Supervisor, Center for Reading
Marion Deutsch, Teacher - P.S. 197 - District 22
Marilyn Funes, Reading Specialist, Center for Reading
Marjorie Gaddy, Center for Reading
Rosalind Hanig, Teacher - P.S. 188 K - District 21
Joel Hillman, Diagnostic Testing Services
Beatrice Kachuck, Professor, Brooklyn College
Eileen Kramer, District Reading Coordinator - District 260
Etta Ladson, Assistant Principal, formerly - I.S. 142 Q, Now Chancellor's Task Force on Attendance
Harold Minsky, Director of Diagnostic Reading Program - District 290
Edith Novod, Assistant Director of English, Center for the Humanities and the Arts
Gloria Orlick, Reading Coordinator - District 19
Benjamin Piltch, Reading Teacher - I.S. 530 - District 27
Lenore Ringler, Professor, New York University
Judith Schepis, Teacher Consultant
Rosemary Wagner, Curriculum Specialist - Retired

REVIEWERS AND ADVISORS FOR REVISIONS

Ruth Adams, Professor, City College
Lydia Romero de Alvores, Principal - P.S. 63 - District 1
Palma Baratta, Curriculum Specialist - District 30
Pamela Barth, Teacher - P.S. 13 K - District 19
Pat Shey Bischoff, Reading Teacher - District 31
Roy Blash, Principal, P.S. 65 - District 19
Woodrow Bovell, Assistant Principal, English - J.H.S. 258 K
Mary Buckley, Reading Coordinator - District 20
Robert De Lisle, Professor, Lehman College
Carmen Dinos, Professor, Brooklyn College
Lerida de Dios, Resource Teacher - District 24
Leonora Farber, J.H.S 231 - District 29
Joan N. Flig, Reading Teacher - I.S. 53 Q
Sylvia Glass, Teacher - P.S. 189 - District 6
Roslyn Gleimer, Reading Teacher - District 22
Dorothy Green, Teacher - P.S. 19 M
Jerome Green, Principal - P.S. 111 M
Maria Guasp, Bilingual Coordinator - District 19
P. Jerry Hutchins, Supervisor of Reading Bureau of Reading State Education Dept.
Hortense P. Jones, Director, Center for School Development
Michelle Jones, Title 1 Corrective Reading Coordinator
Stanley Kaplan - Principal, P. S. 152 M
Harriet Kaufman, Teacher - P.S. 13 K - District 19
Libby Kessler, Teacher _ P.S. 189 - District 6
Leslie Korant, Teacher Trainer - District 19
David Krulik, Assistant Director, Center for Bilingual Education
Marcia Lauffer, Reading Teacher - P.S. 65 - District 19
Muriel Mandell, Coordinator, WEDGE ESEA IV C
John Marcatante, Assistant Principal, English - I.S. 126 Q
Joseph Mehlman, Principal - P.S. 88 - District 24
Elaine Mitchell, Assistant Principal, English - I.S. 158 X
Elizabeth Mulligan, Teacher - P.S. 115 - District 6
Harvey Nagler, Principal - P.S. 35 - District 29
Ruth Peterkin, Teacher - P.S. 153 - District 6
Maria Power, Prinicpal - P.S. 13 - District 19
Leonore Ringler, Professor, New York University
H. Alan Robinson, Professor, Hofstra University
Florence Rosler, Reading Lab Teacher - P.S. 183 - District 27
Beverly Taylor, Reading Coordinator - District 6
Lucille Thomas, Assistant Director, Center for Library, Media and Telecommunications
E. Trowbridge, Teacher - P. S. 13K District 19
Barry Weider, Assistant Principal District 16

FOREIGN LANGUAGE

DEVELOPER AND WRITER

David Weiss, Asst. Director, Center for the Humanities and the Arts

REVIEWERS AND ADVISORS FOR REVISIONS

Chinese: Bernard Lee, Teacher, Seward Park H.S.
Gary Lee, Teacher, Murry Bergtraum H.S.

French: Emile Beux, Asst. Principal, Herbert H. Lehman H.S.
Roselle Meyrowitz, Asst. Principal, Midwood H.S.

German: William Muller, Teacher, J.H.S. 93Q
Caspar Scheiper, Asst. Principal, Curtis H.S.

Hebrew: Solomon Moskowitz, Associate in Secondary Education, Board of Jewish Education
Stanley Sobolofsky, Teacher, J.H.S. 141X

Italian: Adele Farella, Asst. Principal, New Dorp H.S.
Nivea Roman, Asst. Principal, Francis Lewis H.S.

CREDITS

Latin: Dr. Juno Blake, Teacher,
Stuyvesant H.S.
Dominick Cerasulo, Teacher,
Christopher Columbus H.S.

Russian: Anna Elman, Teacher,
South Shore H.S.
Sylvia Maizell, Teacher,
Bronx H.S. of Science

Spanish: Samuel LaRocca, Asst. Principal,
August Martin H.S.
Lester Schweitzer, Asst. Principal,
William H. Taft H.S.

FLES: Harriet Bryer, Principal,
P.S. 177Q
Eleanor Roth, Teacher,
P.S. 50Q

HEALTH EDUCATION

Melvin Warren, Assistant Director Health Education, writer.
Revisions were based on field evaluations.

HOME ECONOMICS

DEVELOPERS AND WRITERS

Kathleen V. Rogers
Home Economics
Olga E. Sobelsohn
Assistant Director
Sylvia B. Anker and Claire S. Rosenthal
Supervisors

INDUSTRIAL ARTS

DEVELOPERS AND WRITERS

Herbert Siegel, Director
of Industrial Arts
Emanuel Gillers, Asst. Director
of Industrial Arts
Samuel Garry, Supervisor
of Industrial Arts
David Berlin, Supervisor
of Industrial Arts - Special Education
Carl Brenner, Supervisor
of Industrial Arts
On Chin, Teacher-Trainer
of Industrial Arts - Special Education
Robert Fixler, Supervisor
of Industrial Arts
Nathan L. Friedman, Supervisor
of Industrial Arts

LIBRARY MEDIA

DEVELOPERS AND WRITERS

Geraldine Clark, Assistant Director, Head Library Unit, Center for Library, Media and Telecommunications
Lucille Thomas, Assistant Director, Elementary School Library Media Centers, Center for Library, Media and Telecommunications
Cathleen Mahoney, Elementary School Library Media Specialist, Center for Library, Media and Telecommunications
Betty Silvers, District Librarian, District 14
Mercedes Rowe, District Librarian, District 11
Lorrelle Henry, District Library Supervisor, District 16
Carol Redding, Library Media Specialist - I.S. 136

REVIEWERS AND ADVISORS .

Lorrelle Henry, Library Supervisor, District 16
Janet Naftol, District Librarian, District 26
Mercedes Rowe, District Librarian, District 11
Betty Silver, District Librarian, District 14
Rhoda Kleiman, Library Media Specialist, JHS 167-M
Carol Redding, Library Media Specialist, IS 136-M
Ethel Olicker, Library Media Specialist, JHS 189-Q
Mary Knight, Library Media Specialist, JHS 263
Suzanne L. Burach, Pura Belpre Children's Caravan, District 16
Marian Bauman, P.S. 309, District 16
Elaine Kaufman, P.S. 215, District 27
Marilyn Yaiger, P.S. 345, District 19
Jim Amato, P.S. 305, District 13
Inez Rubin, P.S. 9, District 13
Dorothy Aranoff, P.S. 251, District 29
Claire Pressman, P.S. 181, District 29
Louise Miller, P.S. 287, District 13
Arlene Lichterman, P.S. 100, District 21
Robert Stavrakas, Principal, I.S. 7-R
Gloria Saunders, Principal. P.S. 299-K
Alvin, Yurman, Principal. P.S. 203-Q
Loretta Boyce, Principal, I.S. 383-K
Laura Goodman, UFT Library Media Committee
Shirley Rappaport, New York City School Librarians' Association

MATHEMATICS

DEVELOPERS AND WRITERS OF ORIGINAL MATERIALS

Frank J. Wohlfort, Asst. Director for Mathematics & Science
Alice Lombardi, Mathematics Coordinator District 24

REVIEWERS AND ADVISORS FOR REVISIONS

District Math Coordinators

Vincent J. Altamuro, Dist. 8
Kathleen K. Barry, Dist. 3
Jessie Berger, Dist. 16
Lillian Boyce, Dist. 17 (Aux. Trainer)
Shirley Brady, Dist. 17
Eric Calyo, Dist. 7
Janet Castellano, Dist. 31
Maria DeSalvio, Dist. 1
Louise M. Gemake, Dist. 4
Howard Goldstein, Dist. 18
Alfred Grab, Dist. 6
Zella C. Jackson, Dist. 5
Leah Karp, Dist. 11
Marvin Kreutzberger, Dist. 19
Aurora S. Larocca, Dist. 32
Sandra Lightbody, Dist. 14
Mary-Etta Maynor, Dist. 10
Mark Mendes, Dist. 23
Dorothy S. Minsley, Dist. 26
Stephen Rappaport, Dist. 23
Miriam R. Revkin, Dist. 20
Judith Ann Ries, Dist. 8
Matthew Scaffa, Dist. 31
Audrey Simon, Dist. 25
Hyacinth D. Stevens, Dist. 7
Sophie C. Sussman, Dist. 2

CREDITS

Mary J. Teshara, Dist. 12
Beatrice P. Williams, Dist. 27
Linda Zorn, Dist. 7
Robert Atkins, Asst. Princ.
John Adams HS
James Bruni, Prof. Math. Ed. Lehman College
Aaron Buchman, Assoc. Bureau of Math Ed, State Education Dept.
Edward Carroll, Prof, Math Ed. N.Y.U.
Jacob Cohen, Asst. Principal T. Roosevelt H.S.
Terrance Conaty, Teacher. JHS 117M
Ira Ewens, Principal James Madison HS
Jerome Fisher, Asst. Principal IS 218K
Thomas Fransko, Teacher, JHS 117M
Dorothy Geddes, Prof. Math Ed. Bklyn College
Blanche C. Gladstone, Corrective Math Specialist - Title I Corrective Mathematics Program
Edward Graybow, Teacher, JHS 117M
Cynthia Griffin, Teacher, JHS 117M
Harold Grill, Principal, JHS 104M
George Grossman, Dir. (retired), Center for Math & Science
Irwin Kaufman, Asst. Principal, South Shore H.S.
Henry Leighton, Asst. Principal, JHS 166K
Phillip Levine, Teacher, JHS 117M
Ira Lyons, Asst. Princ. IS 13M
George Mills, Principal, JHS 17M
Fred Paul, Chief, Bureau of Math Ed. State Education Department
Donald Rosen, Teacher, JHS 117M
Jerome Rosofsky, Principal, JHS 189Q
Walter Rubin, Asst. Principal, Truman High School; President Math Chairmen Assoc.
Harry Ruderman, Chairman Math, Hunter H.S.
Murray Soffer, Asst. Principal, IS 111K
Lucille A. Stovall, Coordinator - New York City Corrective Mathematics Program
Bruce Vogeli, Prof. Math Ed. Teachers College
Stephen S. Willoughby, Prof. of Math Ed., N.Y.U.

WRITERS AND/OR DEVELOPERS OF REVISIONS

Frank J. Wohlfart, Asst. Dir. Mathematics and Science
Charles Bechtold, Principal, P.S. 101Q
Shirley Brady, Math Coordinator, Dist. 17
Joseph Gehringer, Teacher, JHS 65M
Alan Ginsberg, Asst. Principal, JHS 125Q
Harriet Haynes, Teacher, JHS 88K
Marvin Kreutzberger, Math Coordinator, Dist. 19
Alice Lombardi, Mathematics Specialist, Center for Math and Science
Mary Teshara, Math Coordinator, Dist. 12
Leonard Zavlick, Asst. Principal, IS 167X

MUSIC

DEVELOPERS AND WRITERS

John Motley, Director of Music
Leo Sevush, Asst. Director of Music
Milton Friedman, Supervisor of Music, District 25
George Hall, Chairman of Music, Taft H.S.
Elton Warren, Supervisor of Music, District 9
Jeanette Carlstein, Supervisor of Music (Retired)

REVIEWERS AND ADVISORS

Selma Gold, Chairman of Music, Franklin K. Lane H.S.
Martin Gottesfeld, Chairman of Music, Martin Luther King H.S.
Asta Hairston, Supervisor of Music, District 17

PHYSICAL EDUCATION

DEVELOPERS AND WRITERS

Angela Zirpiades, Assistant Director, Physical Education
Lillian Vitaglione, Movement Specialist - P.S. 41 - wrote grades K - 6
Bernard Kirschenbaum, Assistant Director, Physical Education - wrote grades 7 - 9
Revisions were based on field evaluations and the new curriculum bulletin.

SCIENCE

DEVELOPERS AND WRITERS OF ORIGINAL MATERIALS

Sam Fried, Asst. Director, Science, Center for Mathematics and Science, Center for Curriculum and Instruction
Barry Wiesenfeld, Science Coordinator, District 24

REVIEWERS AND ADVISORS

Harold Alper, Chairman of the Science Standing Committee, Asst. Principal, Supervisor of Physical Science
Rose Blaustein, Science Coordinator, District 2
Arthur DeSantis, Science Coordinator, District 25
Leonard Epstein, Principal, P.S. 161K
Beatrice Fried, Science Coordinator, District 17
Rahla Gold, Principal, P.S. 92K
David Goldberg, Asst. Principal, Science, J.H.S. 296K
Sylvia Hecht, Coordinator, Bank Street College
Jay Littman, Asst. Principal, Science, I.S. 320K
Benjamin Litwin, Asst. Principal, Science, J.H.S. 223K
Joan Mulvaney, Principal, P.S. 181K
Ronald Novins, Asst. Principal, Science, I.S. 246K
Martin Schachter, Asst. Principal, Science, I.S. 10M
Samuel Silverberg, Asst. Principal, Science, J.H.S. 202Q
Lillian Silverman, Asst. Principal, Science, I.S. 292K
Thomas Vinci, Associate Dean, Graduate Studies, Fordham University
Alan Winkler, Science Resource Teacher, District 22

SOCIAL STUDIES

DEVELOPERS AND WRITERS OF ORIGINAL MATERIALS

Pearl Abrams, Teacher, P.S. 26Q

CREDITS

Jerry Blumengarten, Teacher, J.H.S. 166K
Carmen Farina, Teacher, P.S. 29K
Marilyn Fast, Asst. Principal, P.S. 89Q
Betty Garrett, Asst. Principal
Jeanette Hadley, Asst. Principal, P.S. 154M
Floyd Kessler, Teacher, I.S. 142Q
Joyce Rubin, Teacher, P.S. 276K
Joel Shulman, Teacher, P.S.108X

Alfred D. Herman, Principal, P.S. 139K
Miriam Iverson, Teacher, P.S. 26Q

REVIEWERS AND ADVISORS FOR REVISIONS

Charlotte Frank, Director, Center for Curriculum Development
Florence Jackson, Center Director, Center for Humanities and the Arts
Albert Post, Asst. Director, Social Studies
Geri Appel, Teacher, P.S. 34M
Alan Argoff, District Supervisor, C.S.D.#22
Martha Cember, Teacher, P.S. 236K
Janet Ernst, Teacher, P.S. 34M
Debbie Friedman, Teacher, P.S. 29K
Diana Kendall, Global Perspectives in Education
Elena Mancaruso, Teacher, P.S. 38K
Jean Milpilineos, Teacher, P.S. 52K
Shirley Pine, Teacher, P.S. 52K
Lorraine Rhodes, Teacher, P.S. 29K
Diane Rothman, Teacher, P.S. 29K
Barbara Schaeffer, Teacher, P.S. 52K
Zara Schenbaum, Teacher, P.S. 34M
Andrew F. Smith, Global Perspectives in Education

Lenore Wiesenberg, Teacher, P.S. 236K

(Standing Committee)
Alan Argoff, District Supervisor, C.S.D.#22
Morris Brown, Asst. Principal, Port Richmond High School
Bernard O'Kane, Asst. Principal, J.H.S. 218
Larry Pero, Asst. Principal, John Dewey H.S.
Irwin Rosenfeld, Asst. Principal, I.S. 44M
Harvey Seligman, Asst. Principal, I.S. 253

WRITERS AND/OR DEVELOPERS OF REVISIONS

Florence Jackson, Center Director, Center for the Humanities and the Arts
Albert Post, Asst. Director, Center for the Humanities and the Arts
Jerry Blumengarten, Teacher, J.H.S. 166K
Martin Cohen, Asst. Principal, Halsey J.H.S.
Alfred D. Herman, Principal, P.S. 139K

TYPEWRITING

DEVELOPERS AND WRITERS

Norman E. Watnick
Assistant Director,
Business and Distributive Ed.
Donald Donin
Coordinator, Business and
Distributive Ed.

REVIEWERS AND ADVISORS

Shirley Silvers, Dept. of Business. Queens Community College
Robert G. Fleig, Bureau of Business Education, State Education Dept.
Catherine Stapleton, President JHS Typewriting Teachers' Association
Anne Pennino, Chairperson
Secretarial Studies
Standing Committee

EDITORIAL STAFF

CENTER FOR CURRICULUM DEVELOPMENT

Susan S. Aaron
Regina Barnes
Marie Bobetsky
Maureen Maguire
Alaire Mitchell (Project Editor)
Gertrude Blaustein (Proofreading assistant)
Rosemary Stroer (Editing - experimental edition)

Table 10-1. Consonant Correspondences in Various Positions *

[This chart, provided for teacher reference, is to be used at the teacher's discretion. Individual items are to be taught to the children as and when needed.]

Sound or Phoneme	Letter Label	Position		
		Initial	*Medial*	*Final*
/b/	b	bat	tuba	cab
/k/	c	can		
	k	kitten	baker	break
	ck		packer	sack
	ch	chasm		
	qu	quick	liquor	opaque
/s/	s	sit		
	ss		passer	pass
	c	city	racer	
	ps	psalm		
/č/	ch	chip	catcher	rich
	c	cello		
/d/	d	doll	soda	mad
/f/	f	fit	heifer	life
	ff		baffle	cuff
	ph	photo	siphon	
	gh			rough
/g/	g	get	tiger	rag
	gh	ghetto		
	gg		bigger	
/j/	g	gym		rage
	j	jump		
	dg		ledger	badge
/h/	h	house	ahead	
	wh	who		
/l/	l	lake	sailor	metal
	ll		filling	hall
/m/	m	man	tamer	ham
	mb		comber	tomb
	mm		summer	
/ŋ/	n	night	finer	hen
	nn		sinner	
	gn	gnaw		
	kn	knit		

Sound or Phoneme	Letter Label	Position		
		Initial	*Medial*	*Final*
/n/	ng		singer	sing
	n		drink	
/p/	p	picnic	piper	drip
	pp		supper	
/r/	r	rain	bearer	car
	rr		hurry	burr
	wr	wreck		
	rh	rhetoric		
/š/	sh	ship	smasher	lash
	s	sure		
	ci		specious	
	ce		ocean	
	ss		passion	
	ti		nation	
/t/	t	teacher	meter	hit
	tt		sitter	
	pt			receipt
	bt		debtor	debt
/θ/	th	thin	ether	path
/ð/	th	then	either	bathe
/v/	v	voice	mover	wave
/w/	w	work	shower	cow
/ks/	x			box
/y/	y	yard	Sawyer	say
/z/	z	zoo	blazer	
	s		loser	dogs
	zz		nozzle	jazz
/ž/	z		azure	
	s		measure	
	si		delusion	

* Robert B. Ruddell, Reading-Language Instruction: Innovative Practices (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1974) pp. 297-298. Reprinted by permission.

Table 10-2. Vowel Correspondences **

Sound Label	*Vowel*	*Letter Label*	*Example*
Unglided or short	/æ/	a	at
		au	laugh
Glided or long	/ey/	a.e	lane, ate
		ai	bait
		ea	break
		ei	rein
Unglided or short	/e/	e	men
		ea	head
		eo	leopard
		ai	said
		ie	friend
Glided or long	/iy/	e.e	Pete
		e	be
		ea	beat
		ee	beet
		ei	receive
		ie	belief
Unglided or short	/ɪ/	i	bit
		ui	build
		y	hymn
		u	busy
Glided or long	/ay/	i.e	bite
		uy	buy
		ie	flies
		ai	aisle
Unglided or short	/a/	o	hot
Glided or long	/ow/	o.e	home
		oa	boat
		ow	show
		o	go
		ew	sew

Sound Label	*Vowel*	*Letter Label*	*Example*
Unglided or short	/ə/	u	bus
		oo	blood
		ou	enough
Glided or long	/yuw/	u.e	mule
		ew	few
Unglided or short	/u/	oo	good
		u	put
		ew	flew
		ui	fruit
Unglided or short	/ɔ/	a	talk
		au	Paul
		o	dog
		aw	law
Glided or diphthong	/aw/	ow	drown
		ou	loud
Glided or diphthong	/ɔy/	oy	toy
		oi	coin
Note: an unglided or short vowel followed by -r is sometimes referred to as an r-controlled vowel	/ar/, /er/	ar, ea	cart, pear
	/ir/, /ɔr/	ea, oa	ear, oar
	/ur/, /yur/	oo, u.e	poor, pure
	/ər/	e	her

** Ruddell, Reading-Language Instruction: Innovative Practices, pp. 298-299
Reprinted by permission.

APPENDIX B
CURRICULUM PUBLICATIONS

PRINTED PUBLICATIONS

Available from:

****

Publication Sales Office
New York City Board of Education
110 Livingston Street
Brooklyn, New York 11201

****

ART

Art in the Elementary Schools
1963-64, No. 8: 146 p.

Art for the Middle School
1977-78, No. 3: 127 p.

Art Teaching Guides: Puppets and Puppetry
1968-69, No. 8h (Reprinted 1975):
20 p.

COMMUNICATION ARTS

Handbook for Language Arts: Pre K-Grade 2
1965-66, No. 8 (Reprinted 1975): 416 p.

Sequential Levels of Reading Skills:
Grades Pre K-12
1967-68, No. 4 (Reprinted 1970, 1975
1979): 324 p.

Handbook for Language Arts: Grades 3 and 4
1969-70, No. 6: 360 p.

Handbook for English Language Arts,
Grades 5-12: Reading and Literature
1967-68, No. 10 (Reprinted 1969,
1975, 1979): 324 p.

Handbook for English Language Arts,
Grades 5-12: Speech and Composition
1969-70, No. 21: 221 p.

Handbook for English Language Arts:
Grades 5-12: Language Strand
1974-75, No. 4: 286 p.

ENGLISH AS A SECOND LANGUAGE

ESL: Teaching English as a Second
Language in the Middle Grades
1967-70, No. 7: 190 p.

FOREIGN LANGUAGES

Chinese: Levels 1 and 2
1972-73, No. 7: 165 p.

German: Levels 1-4
1966-67, No. 11c: 222 p.

Hebrew: Levels 1-4
1966-67, No. 11b: 207 p.

Latin: Levels 1-4
1967-68, No. 19: 146 p.

Russian: Levels 1-4
1970-71, No. 6: 224 p.

HEALTH EDUCATION

Health Education in the Elementary
Schools
1969-70, No. 2: 249 p.

Health Education in the Secondary
Schools
1972-73, No. 10: 341 p.

HOME ECONOMICS

Home Economics Grades 7-8-9 **
1963-64, No. 4: 169 p.

Young New Yorker's Cookbook
1973-74, No. 9: 244 p.

INDUSTRIAL ARTS

Ceramics for Secondary Schools
1961-62, No. 7 (Reprinted 1966, 1974): 130 p.

Industrial Ceramics
1971-72, No. 5: 133 p.

Drafting Experiences for Intermediate School Pupils: A Resource Bulletin for Teachers of Industrial Arts
1966-67, No. 9 (Reprinted 1970): 75 p.

Electricity - Electronics for Intermediate and Junior High School
1970-71, No. 11: 196 p.

Graphic Arts Grades 7-8-9
1965-66, No. 13: 65 p.

Metalworking for Secondary Schools
1966-67, No. 7: 191 p.

Woodworking: Grades 7-8-9
1965-66, No. 14: 67 p.

Industrial Arts Woodworking: Secondary Schools
1963-64, No. 10 (Reprinted 1969): 111 p.

MATHEMATICS

Mathematics: Pre K-1, Part I
1966-67, No. 6a (Reprinted 1968, 1974): 67 p.

Mathematics: Pre K-1, Part II
1966-67, No. 6b: 150 p.

Mathematics: Grade 1 - Scope and Sequence
1970-71, No. 2: 16 p.

Mathematics: Grade 2
1977-78, No. 11: 180 p.

Mathematics: Grade 3
1977-78, No. 9: 172 p.

Mathematics: Grade 4 and Grade 5 - Scope and Sequence
1969-1970, No. 8 (Reprinted 1973, 1975): 46 p.

Mathematics: Grade 6 - Scope and Sequence
1970-71, No. 4: 22 p.

Mathematics: 9th Year
1966-67, No. 4 (Reprinted 1969): 304 p.

General Mathematics: 9th Year
1964-65, No. 16 (Reprinted 1968, 1970): 270 p.

CURRICULUM PUBLICATIONS, (cont.)

MUSIC

Teaching Music: Grades K-4
1978-79, No. 5: 99 p.

SCIENCE

Science: Grades K-2
1965-66, No. 7 (Reprinted 1968, 1970, 1975): 267 p.

Science: Grades 3-4
1966-67, No. 11 (Reprinted 1969, 1975): 339 p.

Science: Grade 5
1968-69, No. 6 (Reprinted 1974): 264 p.

Science: Grade 7
1971-72, No. 2: 313 p.

Science: Grade 8
1967-68, No. 20: 400 p.

Science: Grade 9
1968-69, No. 9: 309 p.

SOCIAL STUDIES

Grade 1: Living and Working Together in the Community
1967-68, No. 26 (Reprinted 1970, 1976): 113 p.

Grade 2: How People Live in City Communities Around the World
1968-69, No. 2: 199 p.

Grade 4: American People and Leaders: How the United States Began and Grew
1968-69, No. 3: 130 p.

Grade 7: American History: Historical Development of the United States
1967-68, No. 2e (Reprinted 1970): 130 p.

Grade 9: World Studies: Eastern Civilizations - Regional Studies (Revised Edition)
1969-70, No. 12: 397 p.

EXPERIMENTAL PUBLICATIONS

Available from:

****

Center for Curriculum Development
New York City Board of Education
131 Livingston Street Room 601
Brooklyn, New York 11201

****

ART

Art in the High School
May 1974: 102 p.

FOREIGN LANGUAGES

Foreign Language Revision Program:
French
June, 1975,: 99 p.

Foreign Language Revision Program:
Italian
June, 1975: 99 p.

Foreign Language Revision Program:
Spanish
June, 1975: 102 p.

INDUSTRIAL ARTS

Industrial Arts Aerospace for
Intermediate and Junior High
School, Part 2
August, 1970: 120 p.

Graphic Arts for Secondary Schools
March, 1970: 159 p.

Paste Make-up -- A Teaching Guide
Summer, 1970: 76 p.

Plastics for Secondary Schools
June, 1967: 195 p.

School Shop Safety Manual
October, 1977: 225 p.

Teachers Handbook for the Handicapped **

** Available from:

Industrial Arts
N.Y.C. Board of Education
131 Livingston Street Room 511
Brooklyn, N.Y. 11201

MATHEMATICS

Fundamentals of Mathematics, Part 1
November, 1978: 144 p.

Fundamentals of Mathematics, Part 2
November, 1978: 136 p.

MUSIC

Teaching Music, Grades 5 and 6
December, 1975: 106 p.

SCIENCE

Investigating our Environment, Science
Grade 6
June, 1974: 248 p.

SOCIAL STUDIES

Grade 8: Urban Growth: Citizenship in
a Changing Society
December, 1978

FACULTY PRESS, INC